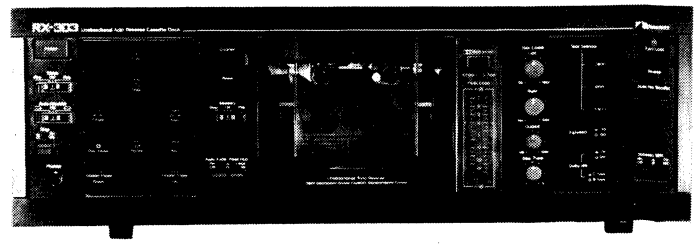
Nakamichi

Service Manual

Nakamichi
RX-303
RX-303E

Unidirectional Auto Reverse
Cassette Deck



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1. GENERAL

1.1. Voltage Selector
Voltage selector is installed on the rear panel for Other version of the Nakamichi RX-303/RX-303E.
This voltage selector can select either 120 V or 220-240 V at customer's disposal.

1.2. Packing Materials and Owner's Manual

Part No.	Description	Q'ty
0F03740A	Outer Carton (U.S.A., Canada, Australia, Others & Japan)	1
0F03744A	Outer Carton (UK & 220V Class 2)	1
0F03774A	Inner Carton (U.S.A., Canada, Australia, Others & Japan)	1
0F03775A	Inner Carton (UK & 220V Class 2)	1
0F03742A	Packing	2
0D04319A	Owner's Manual RX-303 (U.S.A., Canada & Australia)	1
DA03727A	Owner's Manual RX-303/RX-303E (including French statement) (UK, 220V Class 2 & Others)	1
0D04320A	Owner's Manual RX-303 (Japan)	1

2. MECHANICAL ADJUSTMENTS

2.1. Preparation for Adjustment
Load a Gauge into the RX-303 as follows:

(1) Removal of the Cassette Case Ass'y and Cover Plate Ass'y
Refer to Fig. 2.1.
(a) Remove the Front Panel Ass'y.
(b) Turn the Power switch to ON.
(c) Push the Eject/Load button to slide out the Cassette Compartment.
(d) Remove F01 (Stopper Ring 3 mm), F02 (Mylar Washer) and F03 (Cassette Case Ass'y).
(e) Unfasten two screws F04 and remove F05 (Cover Plate Ass'y).
Note: Do not miss the parts removed.

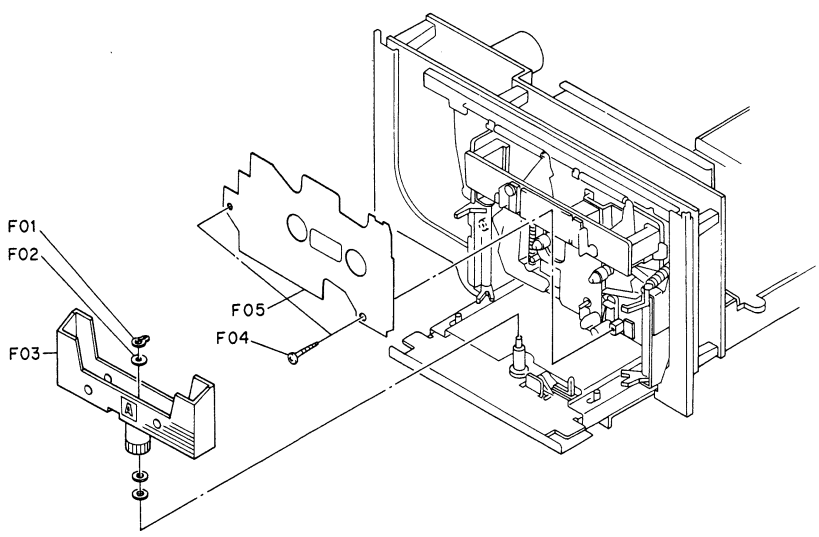


Fig. 2.1

(2) How to Load a Gauge

(a) Tape the Record Protector switch as shown in Fig. 2.2 to allow easy loading of a Gauge.

(b) Load a Gauge as follows:

1) Place a Gauge instead of a cassette tape.

2) With pushing the Gauge with your fingers, push the Eject/Load button to load the Gauge.
The Cassette Compartment automatically slides in and then the Lock Arms (Right & Left) secure the Gauge.

(3) After Adjustment

After adjustment, reverse the above steps as follows:

(a) Push the Eject/Load button to slide out the Cassette Compartment and remove the Gauge.

(b) Remove the tape of the Record Protector switch.

(c) Mount the F05 (Cover Plate Ass'y) and F03 (Cassette Case Ass'y).
Note: Mylar washer(s) must be placed on the original places.

(d) Push the Eject/Load button to slide in the Cassette Compartment.

(e) Turn the Power switch to OFF.

(f) Mount the Front Cover.

2.2. Mechanism Control Cam Adjustment

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Fig. 2.3.
Adjust VR602 and VR603 on the Logic P.C.B. Ass'y to locate approximately at the middle of the variable range. Then turn ON the Power switch.
VR602 (for Cam position play)
VR603 (for Cam position stop)

(b) Press the Stop button to set the cassette deck in Stop mode. Adjust VR603 (for stop) so that the "S" mark on the Cam corresponds to the pointer on the mechanism chassis.

(c) Press the Play button to set the cassette deck in Playback mode. (Cam will rotate, and the position marked with "PY" comes to the pointer.) Adjust VR602 (for play) so that the "PY" mark on the Cam corresponds to the pointer.

(d) Repeat above (b) and (c) 2 — 3 times so that the "S" and "PY" marks on the Cam correspond to the pointer accurately in Stop and Playback modes respectively.
(This adjustment is required because the position adjusted by one volume will be slightly changed when the other volume is adjusted.)

(e) Set the cassette deck in F.F. or Pause mode by pressing each button.
Check to insure that the pointer is in a range of "F" or "PS" mark respectively.

(f) If out of the range, precise adjustment for each position according to "(2) Offset Fine Adjustment of Control Motor Driver" will be required.

(2) Offset Fine Adjustment of Control Motor Driver

Adjust only if a satisfactory result is not obtained in "(1) Offset Adjustment of Control Motor Driver". This adjustment is made by changing the value of the fixed resistors on the Logic P.C.B.
Note: The value of voltage is typical value.

(a) Observation Point of Reference Voltage

Observe the each voltage at the sliding contact of the Cam Control Volume VR608 in Stop, Fast (F.F. or Rew.), Pause and Playback modes.

(b) Reference Voltage

Reference voltage at the sliding contact of VR608 (Cam Control Volume) in each mode is as follows:

Mode	Reference Voltage (Typical Value)	
Stop	0 V	2.0 V ±0.25 V
Fast (F.F./Rew.)	−2.0 V	
Pause	−6.5 V	2.6 V ±0.4 V
Play	−9.1 V	

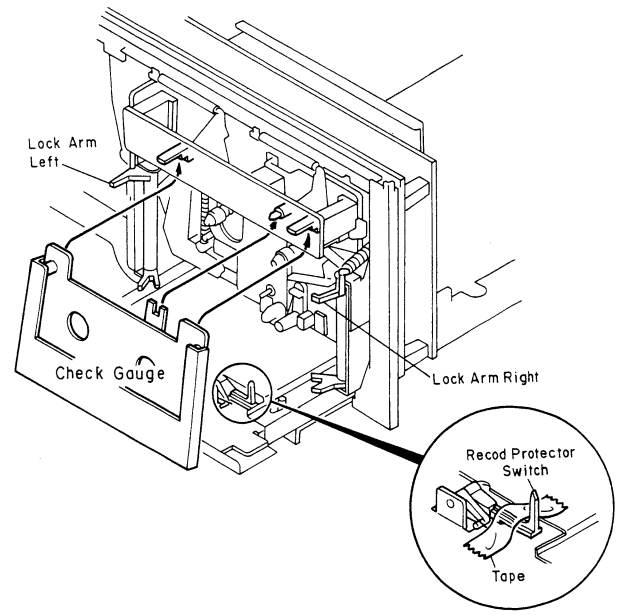


Fig. 2.2

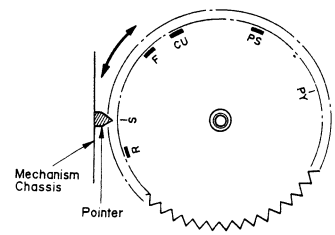


Fig. 2.3

(c) Resistors for Adjustment

Mode	Ref. No.	Typical Value
Fast (F.F./Rew.)	R655	22 kΩ
Pause	R649	76.8 kΩ (F)
Play	R653	10 kΩ

(d) Adjustment Procedures

1) Set the cassette deck in Stop mode, then check to insure that the voltage at the sliding contact of VR608 is 0 V (±0.3 V).

2) Set the cassette deck in F.F. mode, then adjust the value of R655 so that the voltage at the sliding contact of VR608 will become lower by 2.0 V (±0.25 V) than in Stop mode.

3) Press the Pause button to set the cassette deck in Pause mode. Adjust the value of R649 to obtain −6.5 V (+0.4, −0.15 V) at the sliding contact of VR608.

4) Set the cassette deck in Playback mode, then adjust the value of R653 so that the voltage at the sliding contact of VR608 will become lower by 2.6 V (±0.4 V) than in Pause mode.

2.3. Reel Motor Speed Adjustment in Play mode

(1) Connect a DC voltmeter to TP602 and GND on the Logic P.C.B. Ass'y.

(2) Without loading a cassette tape, set the cassette deck in Play mode.

(3) Adjust VR604 on the Logic P.C.B. Ass'y to obtain −4 V on the DC voltmeter.

2.4. Record/Playback Head Tilt Adjustment

Note: On items 2.4 — 2.9, refer to Fig. 2.4 flow chart.
Refer to Figs. 2.5 and 2.6.

(1) Load a Tilt Check Gauge M-9036 (DA09036B) in the cassette deck.
(2) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the cassette deck with the other end.
(3) Remove the Height Gear.
(4) Set the cassette deck in Play mode. Check to insure whether the Beacon "Upper" or "Lower" is illuminating. In order not to give damages onto the record/playback head surface, push the slide knob of the Gauge to the direction of an arrow mark, then return it to the original place to be in contact with record/playback head surface after Play mode is securely locked.
(5) Check to insure freedom from contact between the Gauge and pad lifter.
(6) Beacon "Lower" will light on when height adjustment screw turned clockwise but "Upper" when counterclockwise. Adjust so that both "Upper" and "Lower" will light on even when you move the slide knob to the direction of an arrow mark and then return it to the original place.
(7) Set the cassette deck in Stop mode and fit the serrated Height Gear. Then set the cassette deck again in Play mode and insure 2 Beacons "Upper" and "Lower" are illuminating. If not, (3) through (6) will have to be repeated till satisfactory results are obtained.

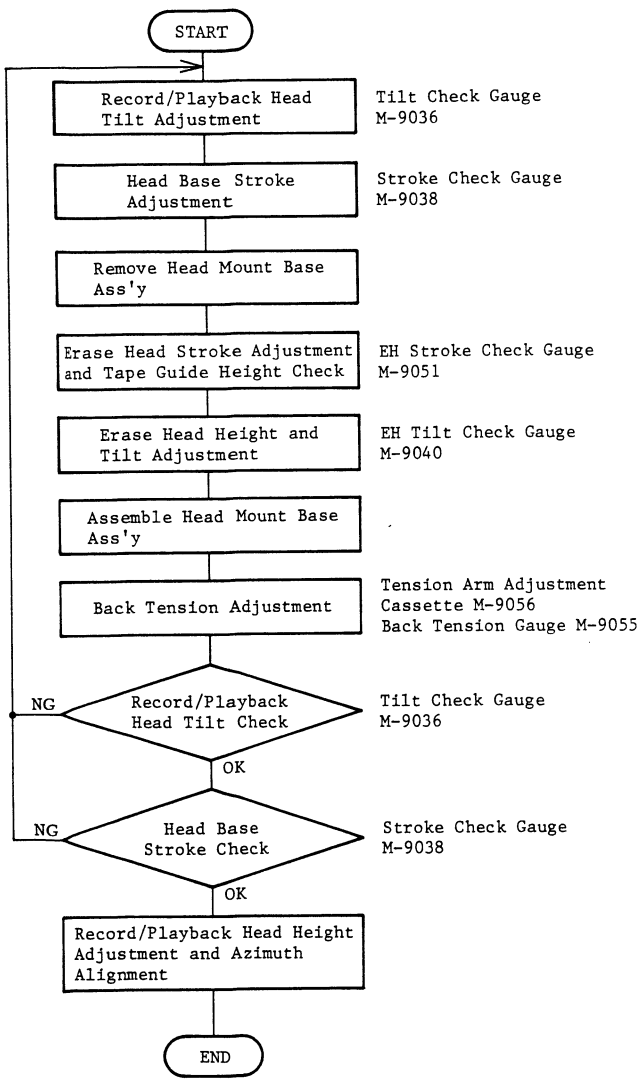


Fig. 2.4

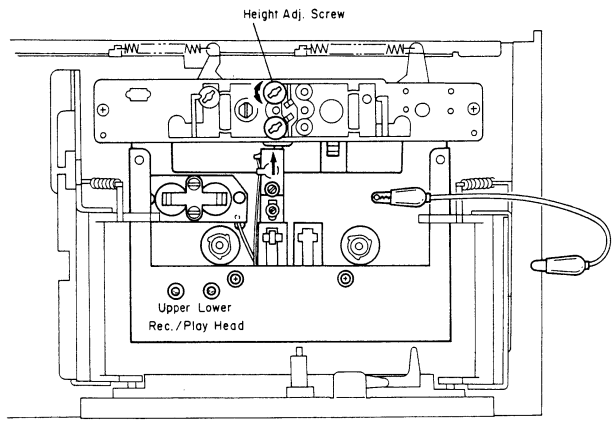


Fig. 2.5

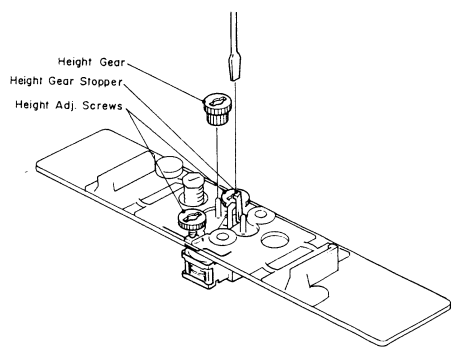


Fig. 2.6

2.5. Head Base Stroke Adjustment

Refer to Fig. 2.7.

Note: Before you conduct this adjustment, adjust with a "Tilt Check Gauge" to insure freedom from tilt on the record/playback head.

(1) Load a Stroke Check Gauge M-9038 (DA09038B) in the cassette deck.

(2) Set the cassette deck in Play mode.

(3) Check to insure whether the "P" pointer on the Stroke Indicator locates between 2 lines as marked on the Stroke Check Plate.

(4) If the record/playback head stroke is noted to be misaligned, adjustment can be made by moving the stroke adjuster assembled in the head base assembly (either forwardly or backwardly).

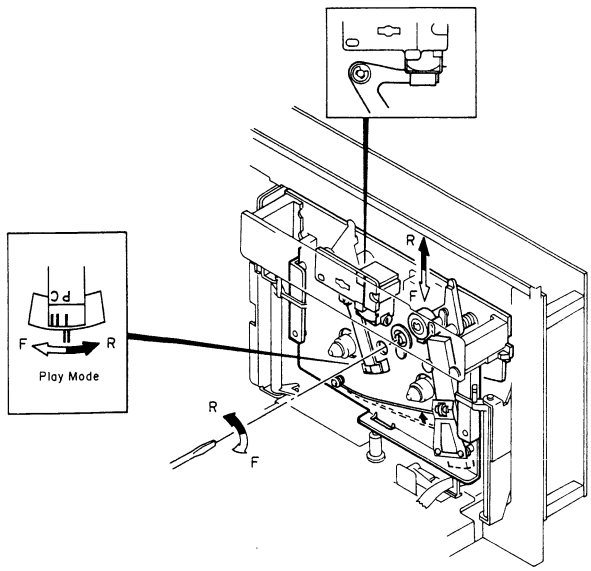


Fig. 2.7

2.6. Erase Head Stroke Adjustment and Tape Guide Height Check

Remove the Head Mount Base Ass'y.

Refer to Figs. 2.8 and 2.9.

(1) Erase Head Stroke Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA09051B) in the cassette deck.

(b) Set the cassette deck in Play mode, thus check can be made on erase head stroke through the EH Stroke Indicator.

(c) Check to insure whether the erase head surface is aligned with red line on the EH Stroke Indicator. If not, adjust the erase head stroke by loosening 2 screws A that assemble erase head and erase head plate.

(d) After completion of adjustment, 2 pcs. of screws shall be locked with lock tight paint.

(2) Supply Tape Guide Height Check

(a) Load an EH Stroke Check Gauge M-9051 (DA09051B) in the cassette deck.

(b) Set the cassette deck in Play mode.

(c) Slide the Supply Tape Guide Check Bar down against the supply tape guide, and check to insure that the Supply Tape Guide Check Bar is accepted by the supply tape guide.

(3) Take-up Tape Guide Height Check

(a) Load an EH Stroke Check Gauge M-9051 (DA09051B) in the cassette deck.

(b) Set the cassette deck in Play mode.

(c) Slide the Take-up Tape Guide Check Bar down against the take-up tape guide, and check to insure that the Take-up Tape Guide Check Bar is accepted by the take-up tape guide.

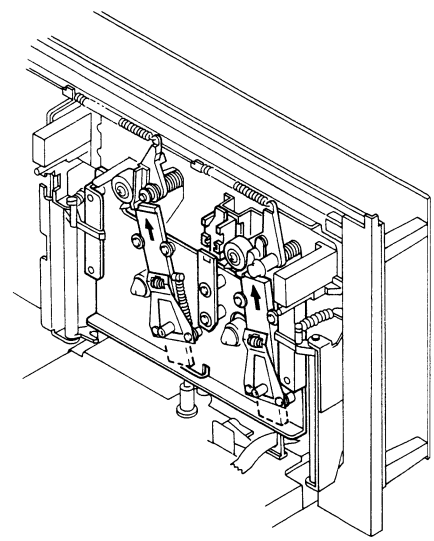


Fig. 2.8

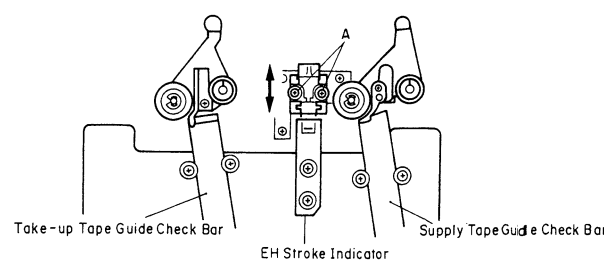


Fig. 2.9

2.7. Erase Head Height and Tilt Adjustment

Refer to Figs. 2.10 and 2.11.

(1) Remove Head Mount Base Ass'y.
(2) Load an EH Tilt Check Gauge M-9040 (DA09040B) in the cassette deck.
(3) Set the cassette deck in Stop mode.
(4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror as shown by an arrow mark and slowly turn the Screw "Height" counterclockwise (or clockwise) so that the two horizontal lines on the mirror will become superposed on the line (in different color) of the erase head, and check to insure whether Beacon "1" is illuminating.
(5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on Beacon "2". Excessive turning will cause the Beacon "1" to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the Beacons "1" and "2" illuminate.
(6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on Beacon "3". Excessive turning will cause either Beacon "1" or "2" to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons "1", "2" and "3" illuminate.
(7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
(8) After completion of adjustment, 3 pcs. of screws shall be locked with lock tight paint.

Note: Before use of this gauge, check to insure freedom from dust or dirts, or overflow in the groove of the erase head surface.

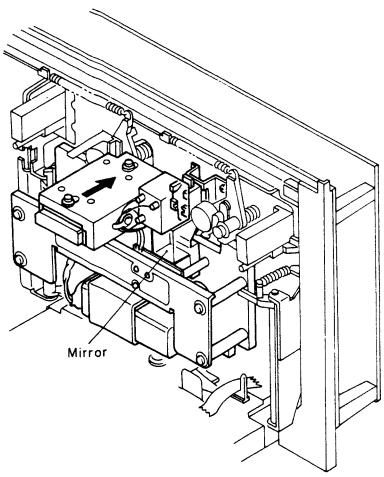


Fig. 2.10

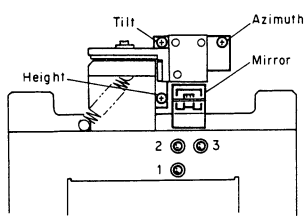


Fig. 2.11

2.8. Back Tension Adjustment

Refer to Figs. 2.12 — 2.14.

(1) Load a Tension Arm Adjustment Cassette (DA09056B) in the cassette deck referring to Fig. 2.12.
(2) Set the cassette deck in Play mode.
(3) Bend the Back Tension Arm with pliers so that the gap between the Cassette Holding Spring assembled on the Head Base Ass'y and the Back Tension Arm becomes 0.5 mm as shown in Fig. 2.13. Do not bend the top of the Back Tension Arm.
(4) Load the Back Tension Gauge (DA09055B) in the cassette deck.
(5) Set the cassette deck in Play mode and read the torque value of Back Tension Gauge.
If the value is in a range of 5 g-cm to 9 g-cm, adjustment is not necessary. If not, change the installation point of the Back Tension Spring as shown in Fig. 2.14, and obtain the torque of 6 g-cm to 8 g-cm range.

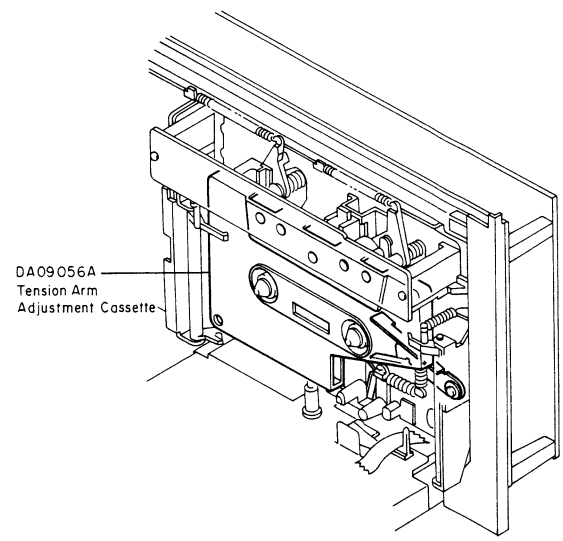


Fig. 2.12

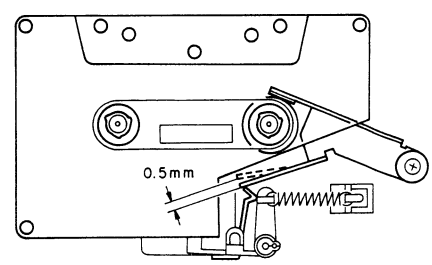


Fig. 2.13

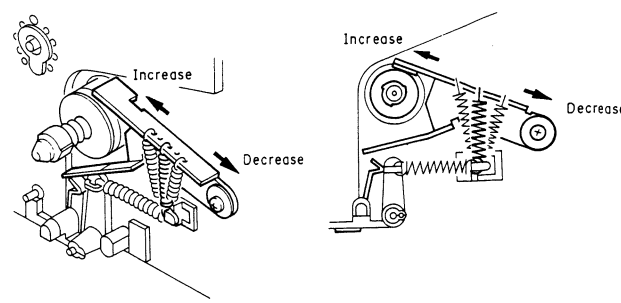


Fig. 2.14

2.9. Record/Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 2.15.

(1) Connect a VTVM to the Output Jacks.
(2) Load a 1 kHz Track Alignment Tape (DA09007B) in the cassette deck.
(3) Set the cassette deck in Play mode.
(4) Turn the Height Gear until the outputs of both channels become minimum.
(5) Load a 15 kHz Azimuth Tape (DA09004B) in the cassette deck.
(6) Set the cassette deck in Play mode.
(7) Turn the Azimuth Alignment Screw until the outputs of both channels become maximum.
(8) Repeat (2) through (7) one or two times to obtain optimum performance.

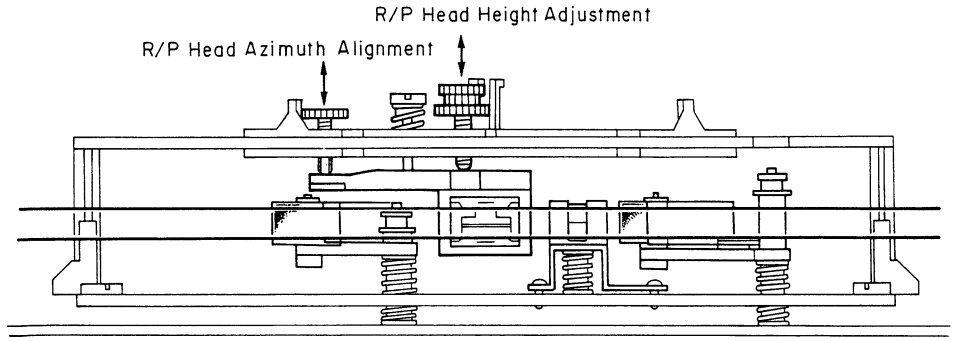


Fig. 2.15

2.10. Tape Travelling Adjustment

Load and playback the Tape Travelling Cassette (DA09071A) and check the following:

(1) Tape is contact with heads sufficiently.
(2) Tape waving is small on the heads and pressure rollers.
(3) Tape is free from waving or slippage from the tape guides.

If either of the above should be noted, adjustment of items 2.4 to 2.9, etc. will be required.

As a case may be, the said waving or slippage may have been caused from defective Supply Pressure Roller Ass'y or Take-up Pressure Roller Ass'y without parallel contact with capstans. If such are noted, the Pressure Roller Assemblies will have to be replaced.

Further, excessively weak take-up torque or strong take-up torque may cause defective tape travelling.

The cassette deck is intended to be an adjustment-free model, however if the similar matters as above should be noted, please replace the Reel Hub Ass'y to obtain appropriate take-up torque.

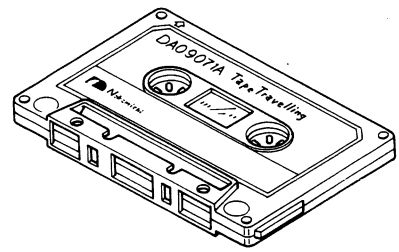


Fig. 2.16

2.11. Flywheel Holder Adjustment

Refer to Fig. 2.17.

(1) Tighten the Thrust Screws until the gap between the Flywheel Assemblies and Thrust Screws becomes minimized when both of the Capstan Shafts are moved backwardly and forwardly by hand (the Thrust Springs between the Capstan Flanges and Flywheel Thrust Caps are in a flat state).
Excessive tightening of the Thrust Screws however will give damages on the Flywheel Assemblies, to which careful attention is invited.
(2) Return the Thrust Screws by 1/2 turn.
(3) Fixing the Thrust Screws with a screwdriver, lock the Lock Nut.
(4) Apply a quantity of lock tight paint to the Thrust Screws.

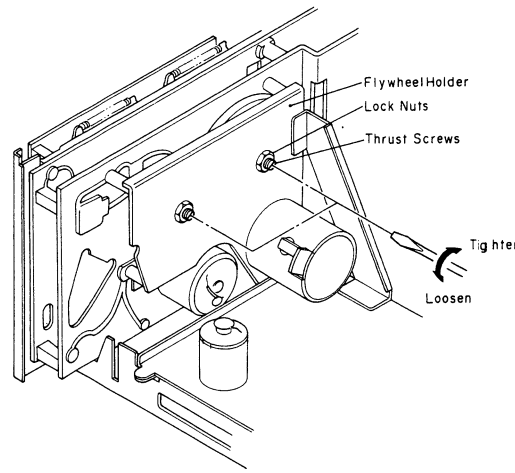


Fig. 2.17

2.12. Tape Speed Adjustment

Refer to Fig. 2.18.

(1) Remove the Top Cover Ass'y.
(2) Connect a Frequency Counter to the Output Jack.
(3) Load a 3 kHz Speed Wow/Flutter Tape (DA09006C) and play it back.
(4) Adjust the Tape Speed Adjustment Volume (VR501) incorporated in the Capstan Motor to obtain 3,000 Hz on the Frequency counter.
    CCW: Motor drives slowly.
    CW: Motor drives fast.

2.13. Slide Base Position Adjustment (on the Logic P.C.B. Ass'y)

(1) Pull out the connector CN604 on the Logic P.C.B. Ass'y.
(2) Ground TP604 to set the cassette case to its side A.
(3) Adjust VR607 to obtain a gap of 2 to 4 mm as shown in Fig. 2.19.
(4) Ground TP603 and TP604 to set the cassette case to its side B.
(5) Adjust VR606 to obtain a gap of 2 to 4 mm as shown in Fig. 2.19.
(6) Ground only TP603 to set the cassette case to its eject position.
(7) Adjust VR605 to the position where the cassette case is about to start rotation.
(8) Repeat above steps (2) to (7) two or three times.
(9) Plug CN604 into the original place.

2.14. Lubrication

This is a lubrication-free cassette deck except when parts are replaced. Apply the following lubricant for each replaced part:

(1) LAUNA #100
    Capstan Shaft
    Pressure Roller Shaft
    Thrust Cap
(2) FLOIL GB-TS-1
    Reel Hub Shaft
    Thrust portion on the Capstan Shaft
    FLOIL GB-TS-1, made by Kanto Chemicals Co., Ltd. in Japan.
    We suggest that you use the above or equivalent type. If unavailable please contact Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo 101 Japan.
(3) Silicon Oil #3000 CST
    Air Damper Piston
    Note: Excessive lubrication may cause defective damper action as the 0.2$^{\phi}$ hole at the end of the cylinder may be filled with oil.

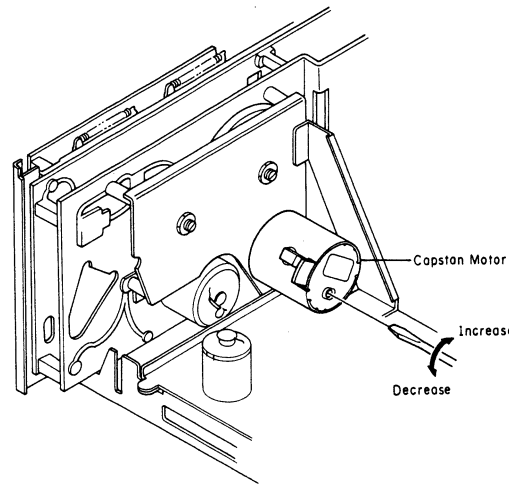


Fig. 2.18

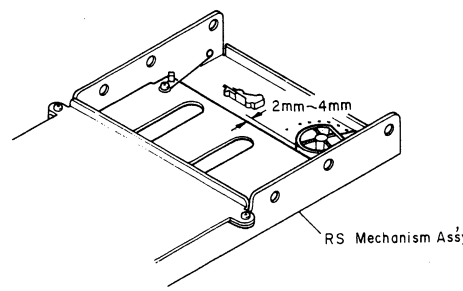


Fig. 2.19

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

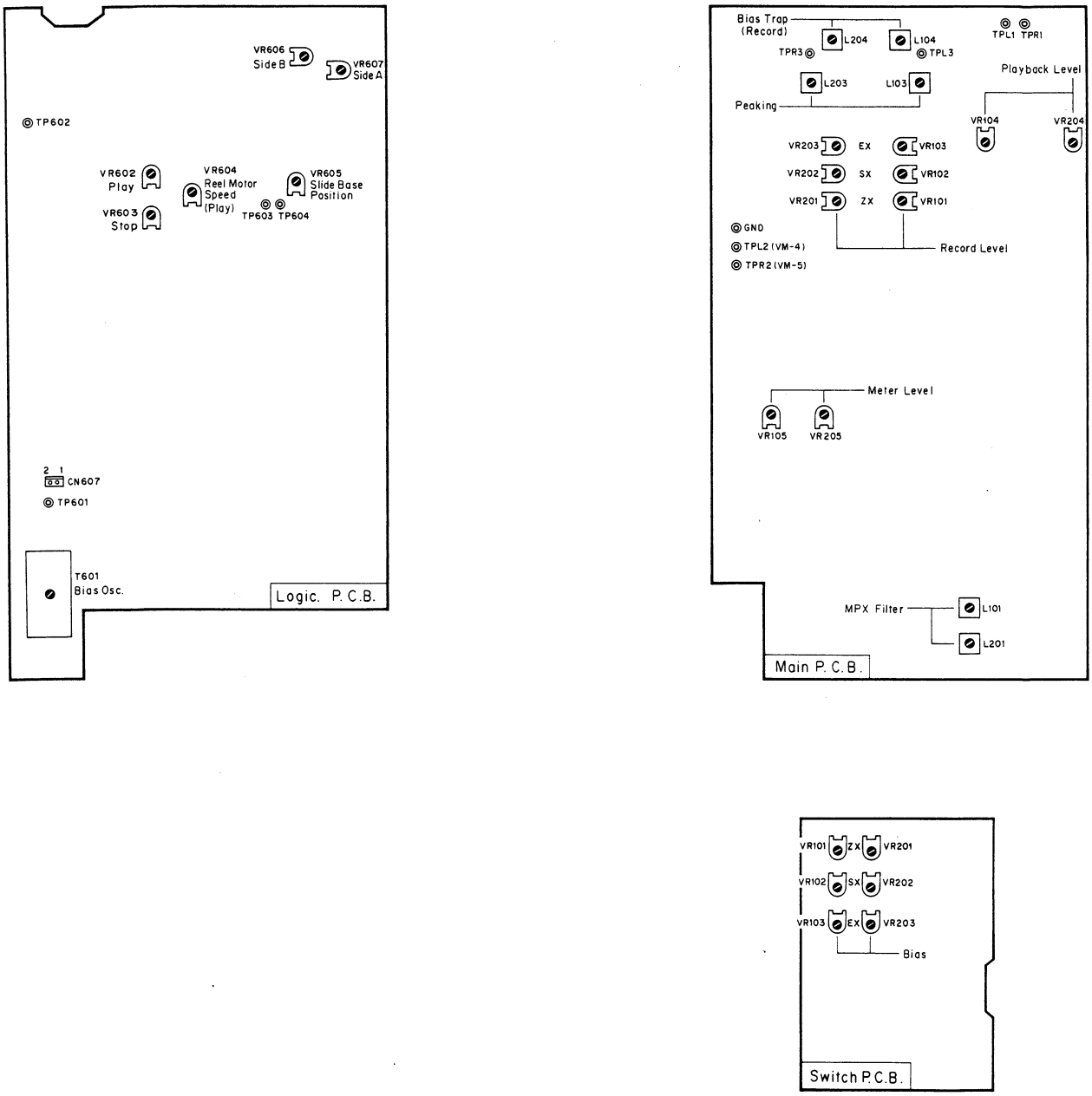


Fig. 3

4. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Notes: 1. Electrical adjustment should be performed after mechanical adjustment is completed.
2. Before adjustment, set the Bias Tune control on the Front Panel to its mechanical center position.

4.1. Adjustment and Measurement Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006C)	Frequency Counter to Output Jacks	Playback Eq. SW — 70 μs	Tape Speed Adjustment Volume	Adjust the volume incorporated in the capstan motor to obtain 3 kHz ±0.5% on the frequency counter.
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to TPL2, TPR2 on Main P.C.B.	Record, Pause	Main P.C.B. VR105, VR205	1. Feed in 400 Hz, then adjust the Input Level controls to obtain 1.0 V —1 dB on the VTVM. 2. Adjust VR105 (VR205) so that the 0 dB segment of the level meter starts illuminating. 3. Adjust the Input Level controls to obtain 1.0 V on the VTVM, then decrease the generator output level by 20 dB. 4. Check to insure that the segment for —20 dB illuminates.
3	MPX Filter Adjustment	19 kHz ±100 Hz to Input Jacks	VTVM to Output Jacks	Record, Pause MPX SW — OFF/ON	Main P.C.B. L101, L201	1. Adjust the Input Level controls to obtain 0 dB (1.0 V) on the VTVM. 2. Set the MPX Filter switch to ON, then adjust L101 (L201) to obtain minimum reading on the VTVM (minimum reading will be less than —30 dB).
4	Record/ Playback Head Track Alignment	1 kHz Track Alignment Tape (DA09007B)	VTVM to Output Jacks	Playback Eq. SW —70 μs Dolby NR SW — OFF MPX SW — OFF	Height Gear	Adjust the Height Gear to obtain minimum readings of both channels on the VTVM.
5	Record/ Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004B)	VTVM to Output Jacks	Same as above	Record/Playback Head Azimuth Alignment Screw	Adjust the Record/Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Repeat steps 4 and 5 one or two times.
6	Playback Level Calibration	400 Hz Level Tape (DA09005B)	VTVM to TPL2, TPR2 on Main P.C.B.	Same as above	Main P.C.B. VR104, VR204	Adjust VR104 (VR204) to obtain 1.0 V on the VTVM.
7	Playback Frequency Fesponse Adjustment	400 Hz Level Tape (DA09005B) 10 kHz PB Frequency Response Tape (DA09003B) 15 kHz PB Frequency Response Tape (DA09002B) 20 kHz PB Frequency Response Tape (DA09001B)	VTVM to Output Jacks	Playback Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	Main P.C.B. R509, R609 R508, R608	1. Load a 400 Hz level tape and play it back. 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the record/playback head azimuth to obtain maximum levels on the VTVM with each tape. 3. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. If not, short R509 (R609) or R508 (R608) on the Main P.C.B. Ass'y to obtain satisfactory results. 10 kHz (—20 dB) —2 dB to +2 dB 15 kHz (—20 dB) —2 dB to +3 dB 20 kHz (—20 dB) —2 dB to +4 dB Check to insure that the difference in level between 10 kHz (—20 dB) and 20 kHz (—20 dB) is less than 2 dB. Refer to the "Playback Frequency Response Adjustment" in item 4.2 for the detailed description. 4. Conduct step 5 "Record/Playback Head Azimuth Alignment".
8	Bias Oscillation Frequency and Erase Current Adjustment		Frequency Counter to CN607-1 on Logic P.C.B. and VTVM across the additional 0.1 Ω resistor	Record, Pause Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF	Logic P.C.B. T601 R961, R960	1. Adjust T601 to obtain 105 kHz on the frequency counter. 2. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across it. 3. Check the erase current by the VTVM. Erase current will be in a range of 310 mA to 400 mA (typically approx. 350 mA). If erase current is not sufficient, increase it by shorting R961 or R960. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor.
9	Record Amplifier Equalizer Adjustment	21 kHz (—20 dB) to Input Jacks	VTVM to TPL1, TPR1 on Main P.C.B.	Same as above	Main P.C.B. L103, L203	1. Remove the bias-cut jumper on the Logic P.C.B. Ass'y. 2. Adjust L103 (L203) to obtain peak reading at 21 kHz on the VTVM. 3. Re-solder the bias-cut jumper.
10	Bias Trap Adjustment (Record Amp.)	Remove input signals	VTVM to TPL3, TPR3 on Main P.C.B.	Same as above	Main P.C.B. L104, L204	Adjust L104 (L204) to obtain maximum reading on the VTVM.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
11	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 dB), 400 Hz (—20 dB), 10 kHz (—20 dB) and 18 kHz (—20 dB) to Input Jacks	VTVM to TPL2, TPR2 and TPL1, TPR1 on Main P.C.B. and VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — C-Type/B-Type/OFF MPX SW — OFF	Main P.C.B. (Level) ZX: VR101, VR201 SX: VR102, VR202 EX: VR103, VR203 Switch P.C.B. (Bias) ZX: VR101, VR201 SX: VR102, VR202 EX: VR103, VR203	Adjustment should be made in the order of ZX, SX and EX. 1. Set the Dolby NR switch to C-Type. 2. Connect a VTVM to TPL2 (TPR2) on the Main P.C.B. Ass'y. 3. Set the RX-303 in Record/Pause mode. 4. Feed in 400 Hz, then adjust the Input Level controls to obtain 1.0 V (0 dB) on the VTVM. 5. Load a reference ZX tape (DA09037B), reference SX tape (DA09025B) and reference EXII tape (DA09066B). 6. Adjust Record Cal. VR101 (VR201) for ZX, VR102 (VR202) for SX and VR103 (VR203) for EXII to center positions. 7. Connect the VTVM to TPL1 (TPR1) on the Main P.C.B. Ass'y. Adjust Bias VR101 (VR201) for ZX, VR102 (VR202) for SX and VR103 (VR203) for EXII to obtain the following bias current in Record/Pause mode (the VTVM is connected across a 10-ohm resistor). ZX: approx. 1 mA SX: approx. 0.5 mA EXII: approx. 0.3 mA 8. Connect the VTVM to the Output Jacks. 9. Feed in 400 Hz (—20 dB) and 18 kHz (—20 dB), then record, rewind and play them back. Adjust Bias VR101 (VR201) for ZX, VR102 (VR202) for SX and VR103 (VR203) for EXII to obtain the same playback levels at 400 Hz (—20 dB) and 18 kHz (—20 dB) on the VTVM. 10. Feed in 400 Hz (0 dB), then record, rewind and play it back. Adjust Record Cal. VR101 (VR201) for ZX, VR102 (VR202) for SX and VR103 (VR203) for EXII to obtain 0 dB on the VTVM. 11. Repeat above 9 and 10 two or three times to obtain optimum performance. 12. Set the Dolby NR switch to OFF. 13. Feed in 400 Hz (—20 dB), 10 kHz (—20 dB) and 18 kHz (—20 dB), then record, rewind and play them back. Check to insure that the playback levels are within —20 dB ±3 dB against the levels in Dolby NR C-Type. 14. Set the Dolby NR switch to B-Type. 15. Feed in 10 kHz (—20 dB) and 18 kHz (—20 dB), then record, rewind and play them back. Check to insure that the levels are within —20 dB ±2 dB against the levels in Dolby NR OFF. 16. Check to insure whether the total harmonic distortion is less than 1.0% for ZX and EXII tapes and 1.2% for SX tape. 17. If above is not sufficient, repeat 9 to 16 till satisfactory results are obtained.
12	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 18 kHz (—20 dB) to Input Jacks	VTVM to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — OFF MPX SW — OFF	Main P.C.B. L103, L203	1. Set the RX-303 in Record/Pause mode. 2. Feed in 400 Hz, then set the Input Level controls to obtain 0 dB (1.0 V) on the VTVM. 3. Decrease the generator output control by 20 dB. 4. Feed in 20 Hz to 18 kHz (—20 dB) and record, rewind and play them back, then check to insure whether the output levels are within —20 dB ±4 dB. 5. If above is not sufficient, adjust L103 (L203) to obtain approx. —20 dB on the VTVM, then conduct step 11 "Record Level Calibration and Recording Bias Current Adjustment". 6. If above is not sufficient, precise re-adjustment of step 7 "Playback Frequency Response", replacement of Record/Playback Head or check on item 2.10 "Tape Travelling Check" will be required.
13	Crosstalk Measurement	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF		1. Erase the tape with bulk eraser. 2. Adjust the Input Level controls to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037B). 3. Turn the cassette tape the other way round and play it back. 4. Measure the difference between 2 and 3.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
14	Channel Separation Measure-ment	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — OFF MPX SW — OFF		1. Erase the tape with bulk eraser. 2. Adjust the Lch (Rch) Input Level control to obtain 0 dB on the VTVM, and set the Rch (Lch) Input Level control to minimum. 3. Record, rewind and play it back, then measure the R ch (L ch) level.
15	Erasure Measure-ment	100 Hz to Input Jacks	100 Hz Band Pass Filter and VTVM to Output Jacks	Same as above		1. Erase the tape with bulk eraser. 2. Adjust the Input Level controls to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037B). 3. Rewind the tape, set the Input Level controls to minimum, and then record again. 4. Rewind the tape, play it back, and then measure the difference between 2 and 3.
16	Signal to Noise Ratio Measure-ment	400 Hz to Input Jacks	IHF-A Curve, Filter, VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μs Dolby NR SW — B-Type/C-Type MPX SW — OFF		1. Set the Dolby NR switch to B-Type/C-Type. 2. Feed in 400 Hz, then record, rewind and play it back. 3. Adjust the Input Level contrls to obtain 3% total harmonic distortion in Playback mode. 4. Set the Input Level controls to minimum then record again. 5. After rewound, play back and check the output level difference between 3 and 4. Note: The filter of IHF-A curve shall be used in the measurements.
17	Total Harmonic Distortion Measure-ment	400 Hz to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Dolby NR SW — OFF MPX SW — OFF		1. Adjust the Input Level controls to obtain 0 dB on the VTVM. 2. Record, rewind and play it back. 3. Read the distortion meter and check to insure that the distortion is as follows: EXII . . . . . 1.0% or less SX . . . . . 1.2% or less ZX . . . . . 1.0% or less
18	Wow/ Flutter Measure-ment	3 kHz Speed and Wow/ Flutter Tape (DA09006C)	Wow/Flutter Meter to Output Jacks	Playback Eq. SW — 70 μs		Play back and read the wow/flutter meter.

4.2. Playback Frequency Response Adjustment

Figs. 4.1 and 4.2 show the playback amp. circuit for adjustment and the playback equalization curve.

This adjustment will be required if playback level is not sufficient during playing back a 20 kHz PB frequency response tape.

The peaking portion of the equalization curve compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R508 (R608) or R509 (R609).

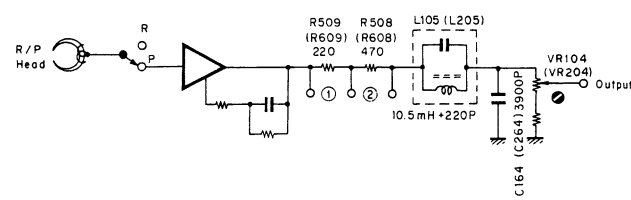


Fig. 4.1

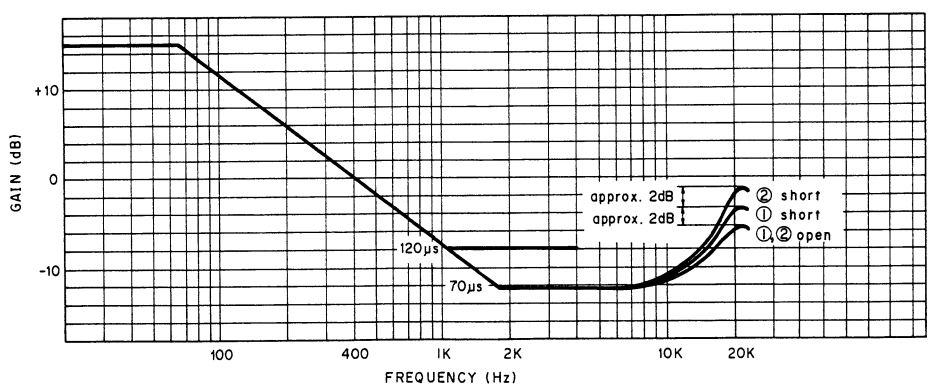


Fig. 4.2

4.3. Dolby NR Circuit Check

Dolby NR circuit incorporates Dolby NR ICs which have no adjustment point.
Perform the following checks and make sure that the IC operates accurately, i.e., frequency response through IC is accurate.

4.3.1. Dolby NR B-Type Circuit Check

(1) **Playback Dolby NR Circuit**

Signal Source:	1.4 kHz to IC102-9 (IC202-9) on Main P.C.B.
Output Connection:	VTVM to test point TPL2 (TPR2) on Main P.C.B.
Mode:	Stop Dolby NR SW — ON (B-Type)/OFF

(a) Connect a VTVM to TPL2 (TPR2) on the Main P.C.B. Ass'y.
(b) Set the Dolby NR switch to B-Type.
Feed in 1.4 kHz and adjust the generator output control to obtain 35 mV on the VTVM.
(c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +3.2 dB ±1.5 dB on the VTVM.

(2) **Record Dolby NR Circuit**

Signal Source:	1.4 kHz to Input Jacks
Output Connection:	VTVM to test point TPL2 (TPR2) and IC102-14 (IC202-14) on the Main P.C.B.
Mode:	Record/Pause Dolby NR SW — ON (B-Type)/OFF

(a) Connect a VTVM to TPL2 (TPR2) on the Main P.C.B. Ass'y.
(b) Feed in 1.4 kHz and adjust the Input level control to obtain 35 mV/11.1 mV on the VTVM.
(c) Remove the VTVM from TPL2 (TPR2) and reconnect it to IC102-14 (IC202-14).
(d) Check to insure that the reading at IC102-14 (IC202-14) corresponds to the following with Dolby NR switch OFF and B-Type.

Input Level at TPL2 (TPR2)	Level at IC102-14 (IC202-14)	
	Dolby NR OFF	Dolby NR B-Type
35 mV	0 dB	+3.2 dB ±1.5 dB
11.1 mV	0 dB	+8.2 dB ±1.5 dB

4.3.2. Dolby NR C-Type Circuit Check

(1) **Playback Dolby NR Circuit**

Signal Source:	1.4 kHz to IC102-9 (IC202-9) on Main P.C.B.
Output Connection:	VTVM to test point TPL2 (TPR2) on Main P.C.B.
Mode:	Stop Dolby NR SW — ON (C-Type)/OFF

(a) Connect a VTVM to TPL2 (TPR2) on the Main P.C.B. Ass'y.
(b) Set the Dolby NR switch to C-Type.
Feed in 1.4 kHz and adjust the generator output control to obtain 35 mV on the VTVM.
(c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +6.5 dB ±1.5 dB on the VTVM.

(2) **Record Dolby NR Circuit**

Signal Source:	1.4 kHz to Input Jacks
Output Connection:	VTVM to test point TPL2 (TPR2) and IC102-14 (IC202-14) on the Main P.C.B.
Mode:	Record/Pause Dolby NR SW — ON (C-Type)/OFF

(a) Connect a VTVM to TPL2 (TPR2) on the Main P.C.B. Ass'y.
(b) Feed in 1.4 kHz and adjust the Input level control to obtain 35 mV/11.1 mV on the VTVM.
(c) Remove the VTVM from TPL2 (TPR2) and reconnect it to IC102-14 (IC202-14).
(d) Check to insure that the reading at IC102-14 (IC202-14) corresponds to the following with Dolby NR switch OFF and C-Type.

Input Level at TPL2 (TPR2)	Level at IC102-14 (IC202-14)	
	Dolby NR OFF	Dolby NR C-Type
35 mV	0 dB	+6.5 dB ±1.5 dB
11.1 mV	0 dB	+11.4 dB ±1.5 dB

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

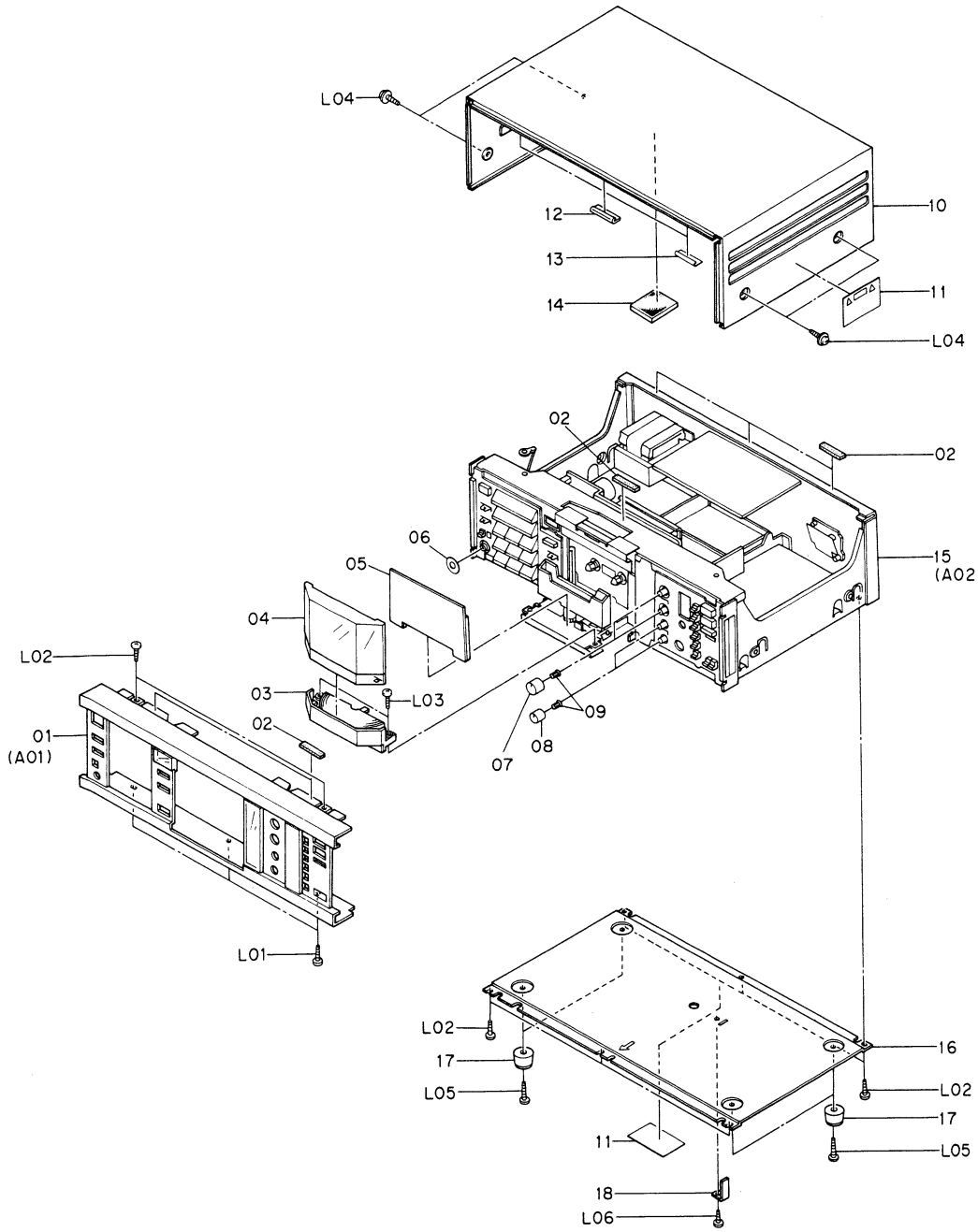


Fig. 5.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
		Synthesis		14	0J04753A	Vibration Isolating Rubber	1
				15	—	Chassis Ass'y	1
01	HA04553A	Front Panel Ass'y RX303	1	16	0J04737A	Bottom Cover	1
	HA04565A	Front Panel Ass'y RX303E	1	17	0J03564A	Leg T-H	4
02	0J04550A	Top Cover Cushion	6	18	0C08583C	Slide Locker	1
03	HA04563A	CAT Bottom Ass'y	1	L01	0E00921A	BT 3x8 ⊕ Binding (Black Chromate)	3
04	0H04345A	CAT Window	1				
05	DA03735A	Caution Card Ass'y	1	L02	0E00868A	BT 3x8 ⊕ Binding (Chromate)	8
06	0J04815A	Headphone Himelon	1	L03	0E00818A	M3x8 ⊕ Binding (Black Chromate)	2
07	0H04343A	Input Volume Knob	2				
08	0H04342A	Output Volume Knob	2	L04	0E03032A	BT 4x8 ⊕ Pan Washer Faced (Black Chromate)	4
09	0H03737A	Volume Knob Base	4				
10	0H04349A	Top Cover	1	L05	0E00865A	BT 3x10 ⊕ Binding (Chromate)	4
11	0M04377A	Caution Label	2	L06	0E03144A	BT 3x6 ⊕ Binding (Red Chromate)	1
12	0J04715A	Top Cover Cushion	1				
13	0J04080A	Top Cover Himelon	2				

5.2. Front Panel Ass'y (A01)

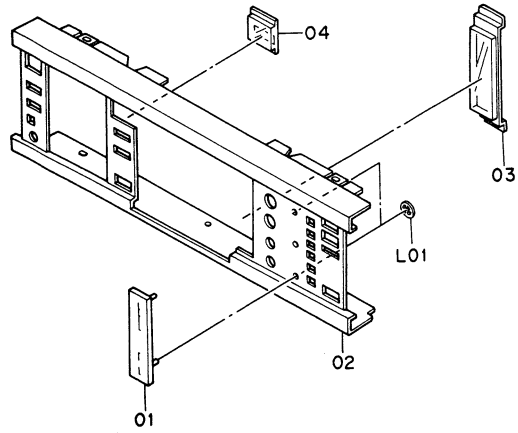


Fig. 5.2

5.3. Chassis Ass'y (A02)

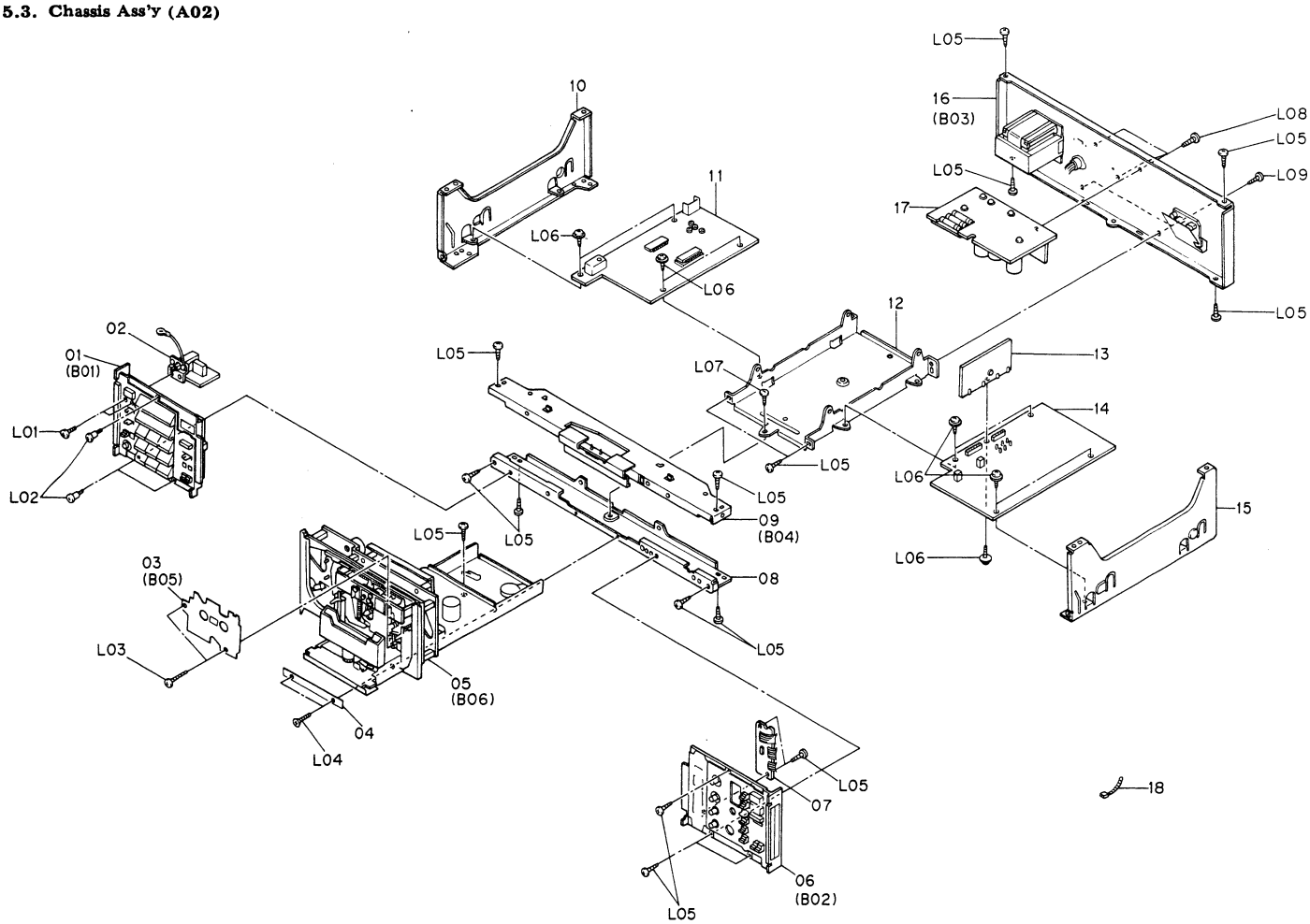


Fig. 5.3

5.4. Front Panel Escutcheon L Ass'y (B01)

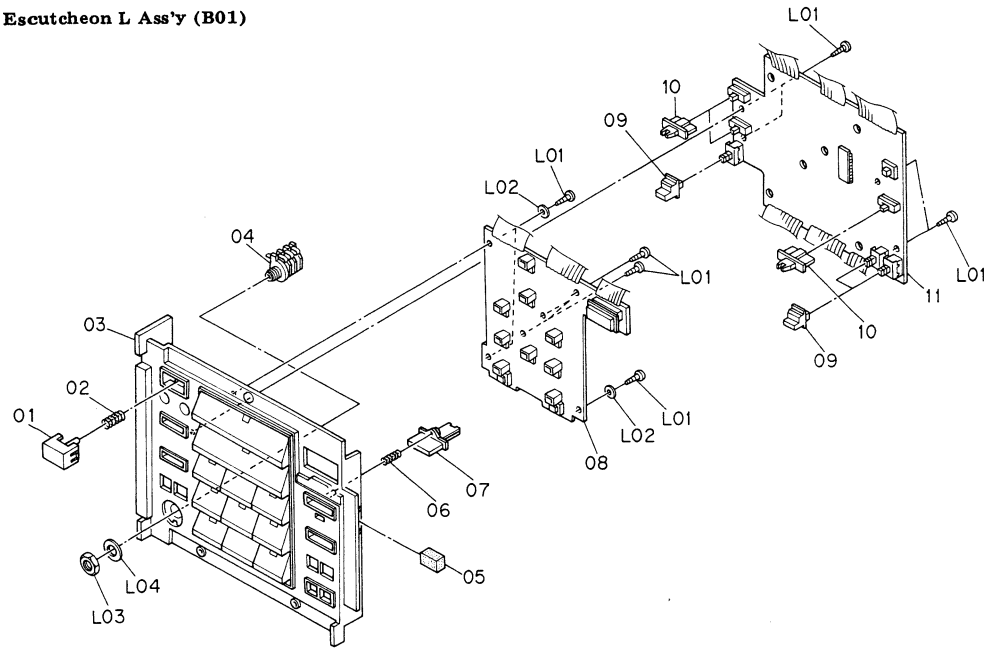


Fig. 5.4

Schematic Ref. No.	Part No.	Description	Q'ty
A01	**HA04553A**	**Front Panel Ass'y RX303**	**1**
	HA04565A	**Front Panel Ass'y RX303E** Serial No.: A80301001 -	**1**
01	0H04335A	Dressing Plate	1
02	0H04331A	Front Panel RX303	1
	0H04354A	Front Panel RX303E	1
03	0H04334A	Meter Cover	1
04	0H04333A	Counter Lens	1
—	0J04627A	Adhesive Tape for Meter IC	2
—	0J04745B	Adhesive Tape for Meter Cover	4
L01	0E00132A	CS-Ring 4mm	2
A02	—	**Chassis Ass'y RX303**	**1**
	—	**Chassis Ass'y RX303E**	**1**
01	HA04554A	Front Panel Escutcheon L Ass'y	1
02	BA05188A	Power Switch P.C.B. Ass'y (RX303 (U.S.A. & Canada))	1
	BA05150A	Power Switch P.C.B. Ass'y (RX303 (Japan))	1
	BA05189A	Power Switch P.C.B. Ass'y (RX303 (Others & Australia) & RX303E)	1
03	CA08507A	Cover Plate Ass'y	1
04	0J04757A	CAT Mechanism Himelon	1
05	CA08500A	Synthesis Mechanism Ass'y	1
06	HA04555A	Front Panel Escutcheon R Ass'y	1
07	BA05142A	Indicator P.C.B. Ass'y	1
08	0J04732D	Bottom Angle	1
09	HA04558A	Upper Angle Ass'y	1
10	0J04750A	Side Chassis L	1
11	BA05146A	Logic P.C.B. Ass'y	1
12	0J04749A	Center Chassis Ass'y	1
13	BA05144A	I/O P.C.B. Ass'y	1
14	BA05139A	Main P.C.B. Ass'y	1
15	0J04751A	Side Chassis R	1
16	HA04533A	Rear Panel Ass'y RX303 (U.S.A. & Canada)	1
	HA04534A	Rear Panel Ass'y RX303 (Japan)	1
	HA04535A	Rear Panel Ass'y RX303 (Others)	1
	HA04536A	Rear Panel Ass'y RX303 (Australia)	1
	HA04537A	Rear Panel Ass'y RX303E (220V Class 2)	1
	HA04532A	Rear Panel Ass'y RX303E (UK)	1
17	BA05147A	DC Power Supply P.C.B. Ass'y	1
18	0B08515A	Insu-Lock	16
—	0J04816A	CAT Mechanism Cushion	1
—	0B08374A	Fuse 1A (RX303 (U.S.A., Canada & Others))	1
—	0B08962A	Fuse 2.5A (RX303 (U.S.A., Canada & Others))	2
—	0B08686A	Fuse 1A (RX303 (Japan))	1
—	0B08961A	Fuse 2.5A (RX303 (Japan))	2
—	0B08347U	Fuse 1AT (RX303 (Australia) & RX303E)	2
—	0B08457A	Fuse 500mAT (RX303 (Australia) & RX303E)	1
—	0M04190A	Fuse Label 1A 250V (RX303 (U.S.A., Canada, Others & Japan))	1
—	0M04409A	Fuse Label 2.5A 250V (RX303 (U.S.A., Canada & Others))	2
—	0M04096C	Fuse Label 500mAT (RX303 (Australia) & RX303E)	1
—	0M04191A	Fuse Label 1AT 250V (RX303 (Australia) & RX303E)	2
—	0B08349B	Fuse Clip (RX505 (Australia) & RX505E)	6
—	0M04343A	Fuse Caution (RX303 (U.S.A. & Canada)	1
L01	0E00607A	M3x8 ⊕Pan (3A)	2
L02	0E03135B	M3x8 ⊕Binding (Half threaded)	3
L03	0E00950A	BT 3x14 ⊕Pan (Black Chromate)	2
L04	0E03115A	BT 3x8 ⊕Countersunk (Black Chromate)	2
L05	0E00868A	BT 3x8 ⊕Binding (Chromate)	18
L06	0E03157A	BT 3x8 ⊕Binding Washer-faced (Chromate)	8
L07	0E00857A	BT 3x6 ⊕Binding (Chromate)	1
L08	0E00915A	BT 4x8 ⊕Binding (Black Chromate)	3
L09	0E00921A	BT 3x8 ⊕Binding (Black Chromate)	2
B01	**HA04554A**	**Front Panel Escutcheon L Ass'y** Serial No.: A80301001 -	**1**
01	0H04327A	Power Switch Button	1
02	0J04794A	Spring for Power Switch	1
03	HA04556A	Front Panel Escutcheon L Sub Ass'y	1
04	0B08511A	Headphone Jack	1
05	0C08611A	Cushion B	1
06	0J04640A	Spring for Reset Switch	1
07	0H04328A	Reset Button	1
08	BA05148A	Control P.C.B. A Ass'y	1
09	0H04337A	Push Switch Button	3
10	0H04330A	Slide Switch Knob	3
11	BA05149A	Control P.C.B. B Ass'y	1
L01	0E00868A	BT 3x8 ⊕Binding (Chromate)	10
L02	0E00157A	Plastic Washer 3mm	3
L03	—	Headphone Jack Nut	(1)
L04	—	Headphone Washer	(1)

5.5. Front Panel Escutcheon R Ass'y (B02)

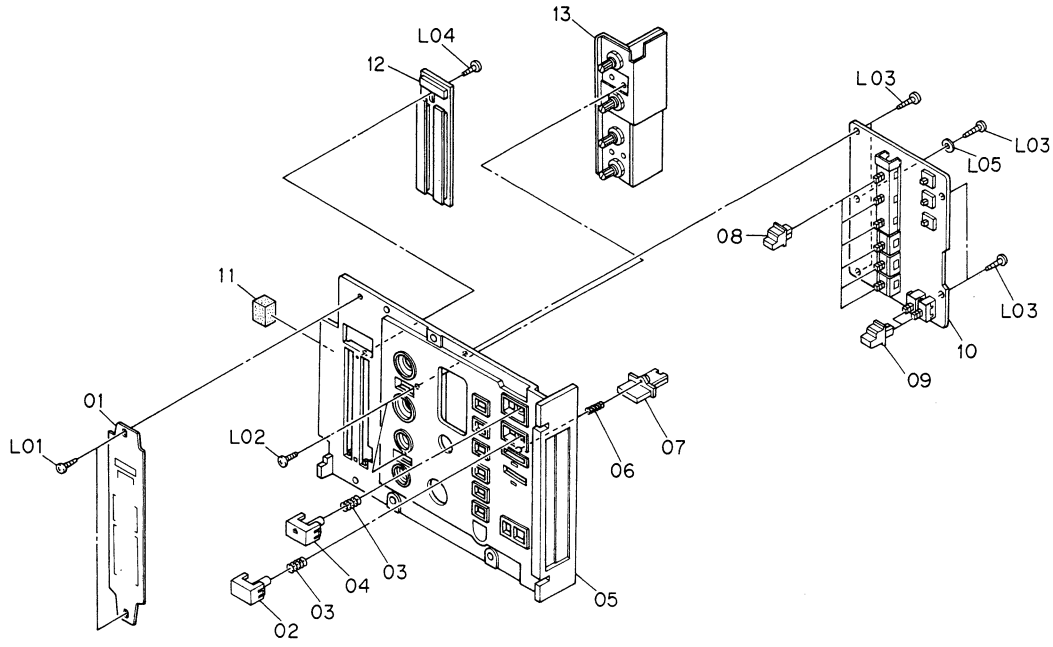


Fig. 5.5

5.6. Rear Panel Ass'y (B03)

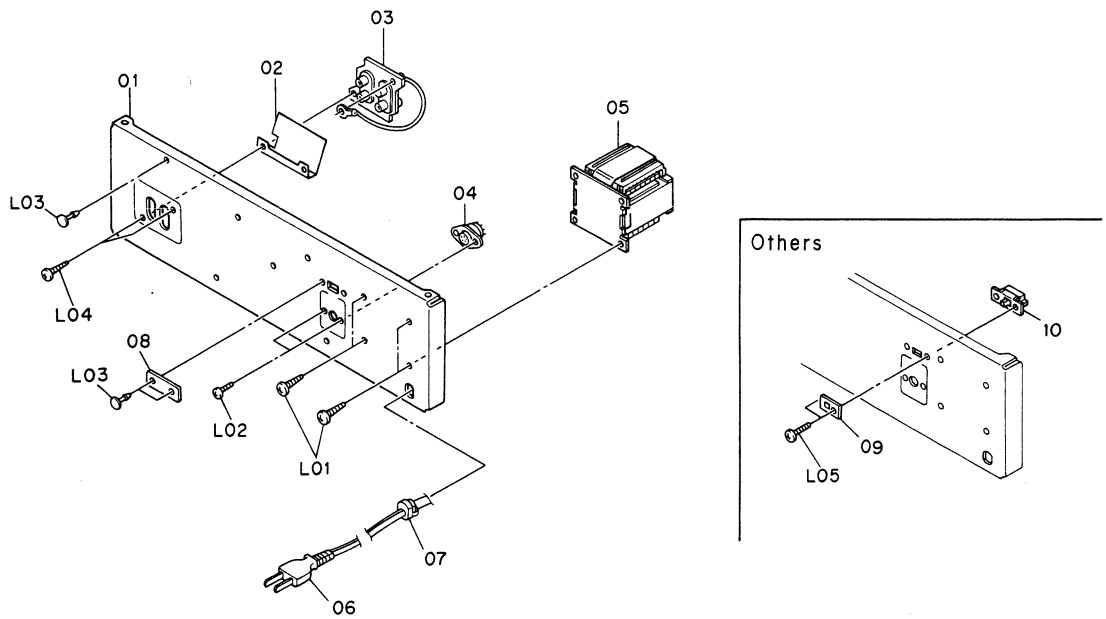


Fig. 5.6

Schematic Ref. No.	Part No.	Description	Q'ty
B02	**HA04555A**	**Front Panel Escutcheon R Ass'y** Serial No.: A80301001 -	**1**
01	0H04341A	Meter Scale	1
02	0H04340A	Reverse Button	1
03	0J04794A	Spring for Eject Switch	2
04	0H04339A	Eject Button	1
05	0H04336A	Front Panel Escutcheon R	1
06	0J04640A	Spring for A.R.S. Switch	1
07	0H04328A	A.R.S. Button	1
08	0H04370A	Selector Button	6
09	0H04337A	Push Switch Button	2
10	BA05140A	Switch P.C.B. Ass'y	1
11	0C08611A	Cushion B	1
12	BA05214A	Indicator P.C.B. Ass'y & Display Unit	1
13	BA05141A	Volume P.C.B. Ass'y	1
L01	0E00873A	BT 2.6x5 ⊕ Binding (Chromate)	2
L02	0E00896A	M3x6 ⊕ Binding (Chromate)	2
L03	0E00868A	BT 3x8 ⊕ Binding (Chromate)	5
L04	0E00857A	BT 3x6 ⊕ Binding (Chromate)	1
L05	0E00157A	Plastic Washer 3mm	1
B03	**HA04533A**	**Rear Panel Ass'y RX303 (U.S.A. & Canada)**	**1**
	HA04534A	**Rear Panel Ass'y RX303 (Japan)**	**1**
	HA04535A	**Rear Panel Ass'y RX303 (Others)**	**1**
	HA04536A	**Rear Panel Ass'y RX303 (Australia)**	**1**
	HA04532A	**Rear Panel Ass'y RX303E (UK)**	**1**
	HA04537A	**Rear Panel Ass'y RX303E (220V Class 2)** Serial No.: A80301001 -	**1**
01	0H04254E	Rear Panel RX303	1
	0H04356C	Rear Panel RX303E	1
02	0J04806A	Shield Cover	1
03	0B81001A	4P Pin Jack	1
04	BA05198A	8P DIN Socket Ass'y (Consisting of followings)	1
	(0B08584A)	8P DIN Socket	(1)
	(0B08752A)	8P-H Connector	(1)
05	0B50019A	Power Transformer 120V (RX303 (U.S.A. & Canada))	1
	0B50018A	Power Transformer 100V (RX303 (Japan))	1
	0B50021A	Power Transformer 115V/230V (RX303 (Others))	1
	0B50020A	Power Transformer 220V/240V (RX303 (Australia) & RX303E)	1
06	0B08533A	Power Cord (RX303 (U.S.A, Canada & Others))	1
	0B08219B	Power Cord (RX303 (Japan))	1
	0B05241A	Power Cord (RX303 (Australia))	1
	0B08093U	Power Cord (RX303E (220V Class 2))	1
	0B08348A	Power Cord (RX303E (UK))	1
07	0B08037U	Cord Bushing C (RX303 & RX303E (220V Class 2))	1
	0B08351A	Cord Bushing 4K-4 (RX303E (UK))	1
08	0J04601B	Switch Cover (RX303 (U.S.A., Canada, Japan & Australia) & RX303E)	1
09	0M03948A	Voltage Lock Plate D (RX303 (Others))	1
10	0B07092U	Voltage Selector Switch (RX303 (Others))	1
—	0F01071A	Free-up Belt (RX303 (Australia) & RX303E)	1
L01	0E00915A	BT 4x8 ⊕ Binding (Black Chromate)	4
L02	0E03072A	M2.6x6 ⊕ Binding (Black Chromate)	2
L03	0B08583A	Plastic Rivet (RX303 (U.S.A., Canada, Japan & Australia) & RX303E)	2
L04	0E00921A	BT 3x8 ⊕ Binding (Black Chromate)	2
L05	0E00818A	M3x8 ⊕ Binding (Black Chromate) (RX303 (Others))	2

5.7. Upper Angle Ass'y (B04)

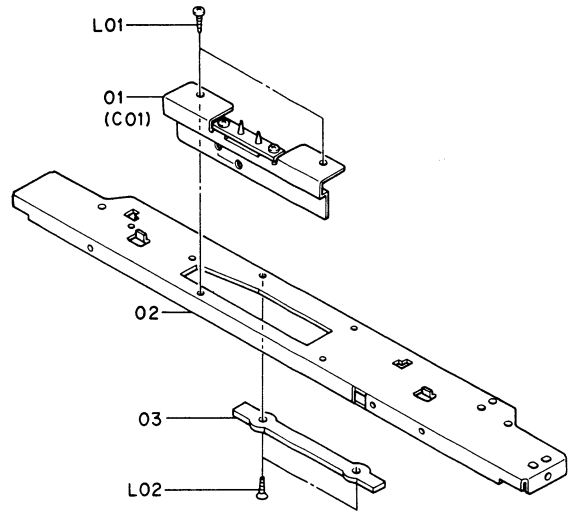


Fig. 5.7

5.8. Cover Plate Ass'y (B05)

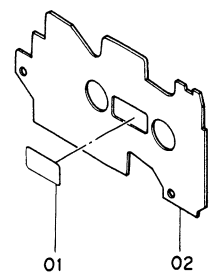


Fig. 5.8

Schematic Ref. No.	Part No.	Description	Q'ty
B04	**HA04558A**	**Upper Angle Ass'y** Serial No.: A80301001 -	**1**
01	HA04557A	Lid Cover Ass'y	1
02	0J04788B	Upper Angle	1
03	0J04808A	Holder Plate	1
L01	0E00868A	BT 3x8 ⊕ Binding (Chromate)	2
L02	0E03073A	BT 3x6 ⊕ Countersunk (Black Chromate)	2
B05	**CA08507A**	**Cover Plate Ass'y** Serial No.: A80301001 -	**1**
01	0M04392A	Cassette Label (Gold)	1
02	0C08553A	Cover Plate	1

5.9. Synthesis Mechanism Ass'y (B06)

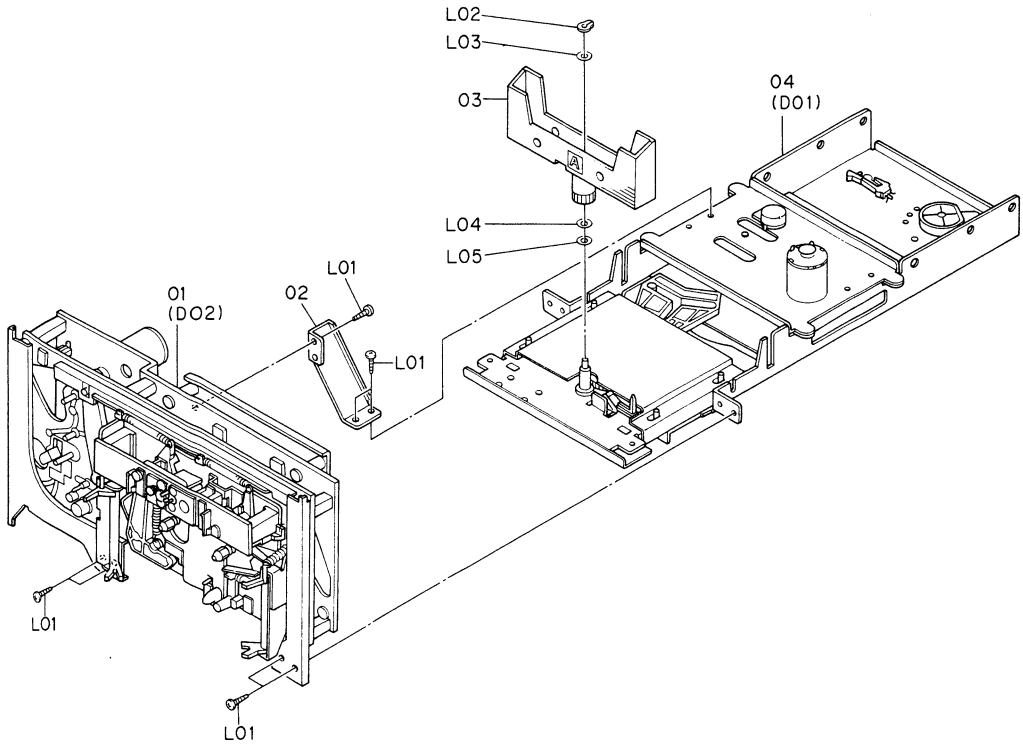


Fig. 5.9

5.10. Lid Cover Ass'y (C01)

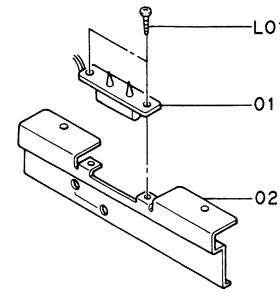


Fig. 5.10

Schematic Ref. No.	Part No.	Description	Q'ty
B06	**CA08500A**	**Synthesis Mechanism Ass'y** Serial No.: A80301001 -	1
01	CA08503A	Mechanism Ass'y RX303	1
02	0C08597A	Rear Holder	1
03	CA08511A	Cassette Case Ass'y	1
04	CA08508A	RN Mechanism Ass'y	1
L01	0E00857A	BT 3x6 ⊕ Binding (Chromate)	7
L02	0E00837A	Stopper Ring 3mm	1
L03	0E00254A	Mylar Washer 3.1x7x0.2	1
L04	0C08347A	Mylar Washer 3.1mm (0.25t)	1
L05	0C08594A	Mylar Washer 3x0.5	1
—	0E03163A	Mylar Washer 3x0.13	1
C01	**HA04557A**	**Lid Cover Ass'y** Serial No.: A80301001 -	1
01	BA05143A	Lid Lamp P.C.B. Ass'y	1
02	0H04348A	Lamp Cover	1
L01	0E03070A	M2.6x6 ⊕ Binding (Chromate)	2
D01	**CA08508A**	**RN Mechanism Ass'y** Serial No.: A80301001 -	1
01	CA08526A	Motor Holder Ass'y	1
02	0C08615A	Slide Cover B	1
03	0C08099B	Cam Motor Belt	1
04	0C08525A	SD Pulley	1
05	CA08509A	Slide Chassis Ass'y	1
06	0C08133A	Skeleton Switch	1
07	0B82203A	2P-H Connector	1
08	CA08488A	Main Chassis Ass'y	1
L01	0E00868A	BT 3x8 ⊕ Binding (Chromate)	4
L02	0E03022A	BT 2x4 ⊕ Binding (Black Chromate)	2
L03	0E00222A	E-Ring 2mm	1
L04	0C08594A	Mylar Washer 3x0.5	1
L05	0E00181A	E-Ring 3mm	4
L06	0C08593A	Mylar Washer 4x0.5	8
L07	0E00840A	BT 2x8 ⊕ Pan (Chromate)	2

Schematic Ref. No.	Part No.	Description	Q'ty
D02	**CA08503A**	**Mechanism Ass'y RX303** Serial No.: A80301001 -	1
01	0C08563B	Mechanism Holder L	1
02	0C08564B	Mechanism Holder R	1
03	CA08504A	Sub Mechanism Ass'y	1
L01	0E03060A	BT 4x16 ⊕ Binding (Toothed Lock Washer faced)	1
L02	0E03059A	BT 4x15 ⊕ Binding (Toothed Lock Washer faced)	3
E01	**CA08526A**	**Motor Holder Ass'y** Serial No.: A80301001 -	1
01	0C08527A	PM Gear	1
02	0C08565B	Motor Holder	1
03	CA08527A	Drive Motor Ass'y	1
04	0B07240A	Volume 10K (B)	1
05	0B82201A	5P-H Connector	1
L01	0E00993A	Stopper Ring 6mm	1
L02	—	Volume Nut	(1)
L03	—	Volume Washer	(1)
L04	0E00120A	M2.6x3 ⊕ Pan (Chromate)	2

5.11. RN Mechanism Ass'y (D01)

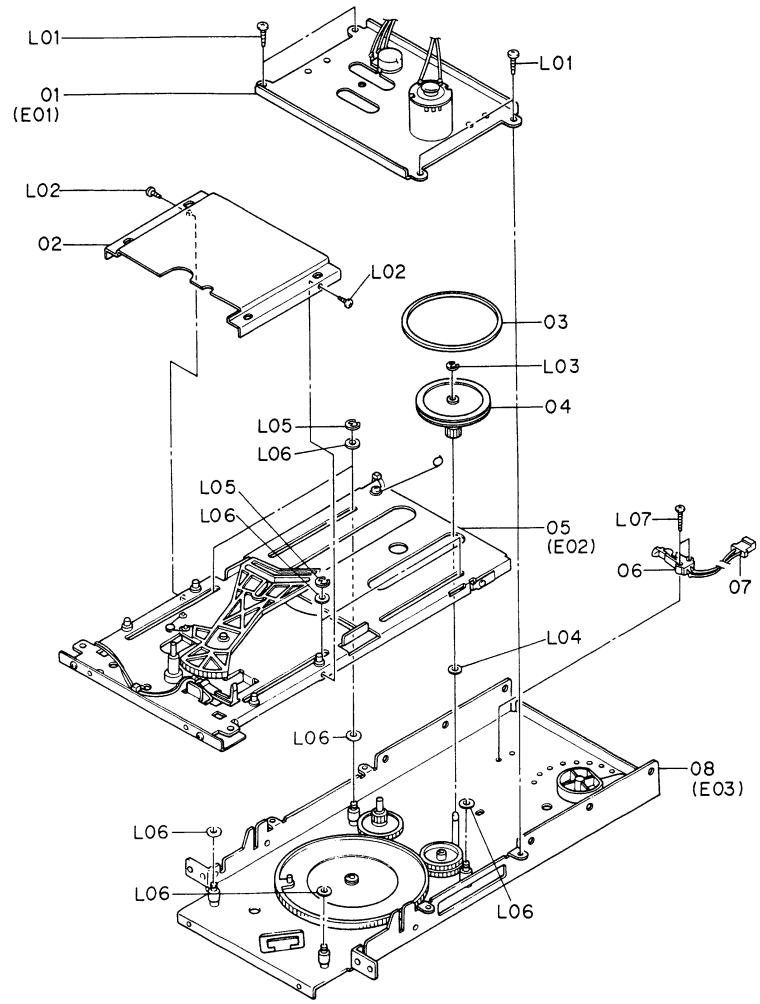


Fig. 5.11

5.12. Mechanism Ass'y RX303 (D02)

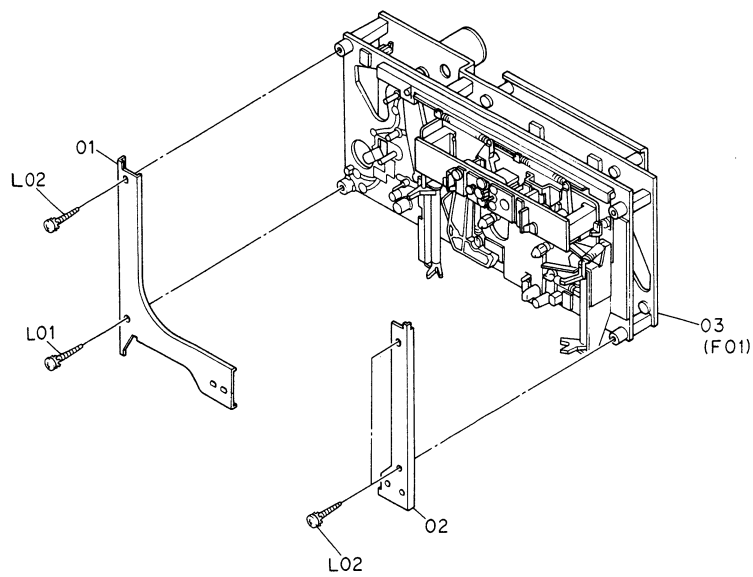


Fig. 5.12

5.13. Motor Holder Ass'y (E01)

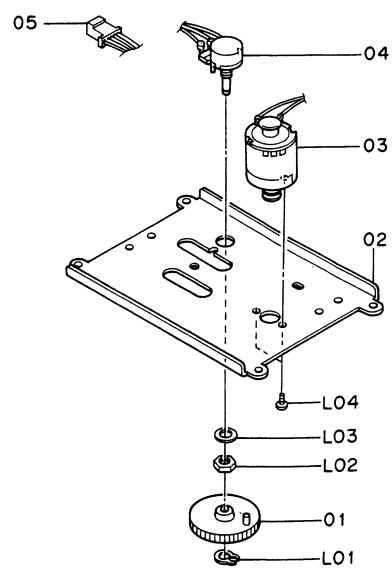


Fig. 5.13

5.14. Slide Chassis Ass'y (E02)

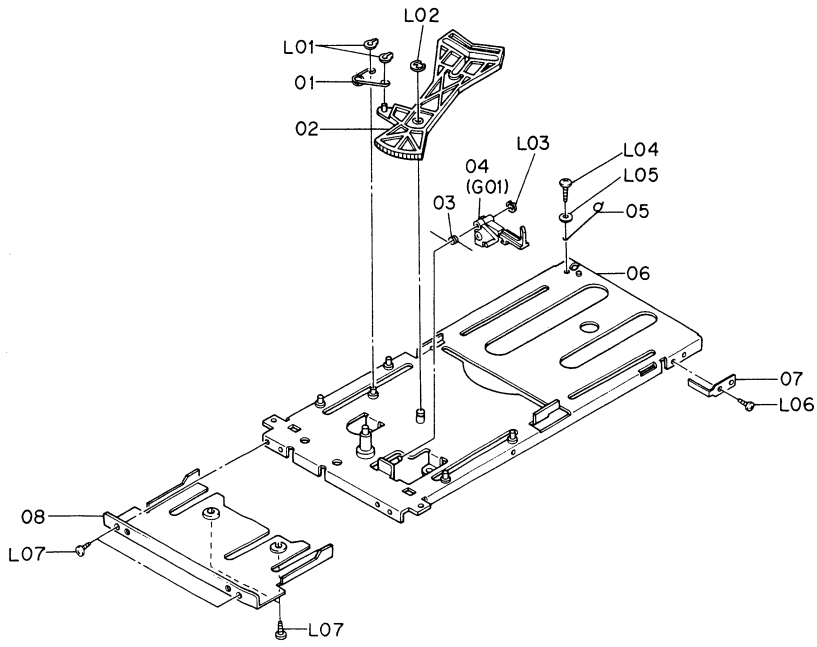


Fig. 5.14

5.15. Main Chassis Ass'y (E03)

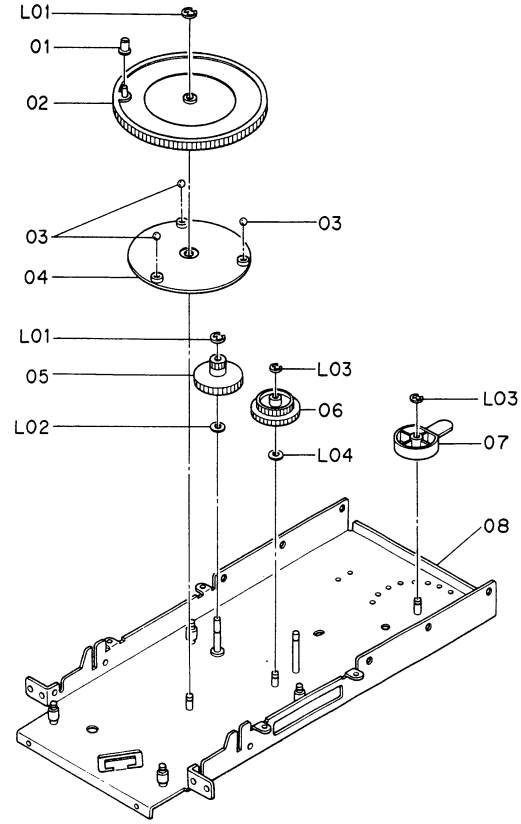


Fig. 5.15

Schematic Ref. No.	Part No.	Description	Q'ty
E02	**CA08509A**	**Slide Chassis Ass'y** Serial No.: A80301001 -	**1**
01	0C08548A	R Arm Spring	1
02	0C08529A	R Arm	1
03	0C08547A	Record Protector Switch Spring	1
04	CA08510A	Record Protector Switch Ass'y	1
05	0C08596A	WH Rod	1
06	CA08475D	Slide Chassis Sub Ass'y	1
07	0C08598A	SS Plate	1
08	0C08552A	Under Cover	1
L01	0E00837A	Stopper Ring 3mm	2
L02	0E00181A	E-Ring 3mm	1
L03	0E00042A	E-Ring 1.5mm	1
L04	0E00857A	BT 3x6 ⊕ Binding (Chromate)	1
L05	0E00637A	Washer 3.3x7x0.5	1
L06	0E03022A	BT 2x4 ⊕ Binding (Black Chromate)	1
L07	0E03133A	BT 2.6x4 ⊕ Binding (Black Chromate)	4
E03	**CA08488A**	**Main Chassis Ass'y** Serial No.: A80301001 -	**1**
01	0C08584A	Collar	1
02	0C08523A	Main Gear	1
03	0C08550A	Ball 4mm	3
04	0C08528A	Retainer	1
05	0C08526A	PMD Gear	1
06	0C08524A	SD Gear	1
07	0C08543A	SS Cam	1
08	CA08474C	Main Chassis Sub Ass'y	1
L01	0E00181A	E-Ring 3mm	2
L02	0C08593A	Mylar Washer 4x0.5	1
L03	0E00222A	E-Ring 2mm	2
L04	0C08594A	Mylar Washer 3x0.5	1

Schematic Ref. No.	Part No.	Description	Q'ty
F01	**CA08504A**	**Sub Mechanism Ass'y** Serial No.: A80301001 -	**1**
01	CA08017B	Flywheel Holder Ass'y	1
02	0C08096C	Capstan Belt	1
03	CA08534A	Supply Flywheel Ass'y	1
04	0C08021B	Thrust Washer 3.1mm	1
05	CA08533A	Take-up Flywheel Ass'y	1
06	0C08020B	Thrust Washer 2.6mm	1
07	0C08243A	Flange Thrust Cap	2
08	0C08244A	Flange Thrust Spring	2
09	CA08513A	Sub Mechanism Chassis Ass'y	1
10	0C08099B	Control Motor Belt	1
11	CA08512B	Main Mechanism Chassis Ass'y	1
12	CA08505A	Lock Arm L Ass'y	1
13	CA08506A	Lock Arm R Ass'y	1
14	0B82199A	6P-H Connector	1
15	0B82204A	3P-H Connector	1
16	0B08515A	Insu-Lock	10
17	0C08620A	Head Height Adjustment Gear	2
L01	0E00833A	BT 3x20 ⊕ Pan (Chromate)	3
L02	0E00834A	BT 3x30 ⊕ Pan (Chromate)	1
L03	0E00178A	Washer 3.3x8x0.5	2
L04	0E00835A	BT 3x25 ⊕ Pan (Chromate)	1
L05	0E00883A	BT 3x18 ⊕ Pan (Chromate)	5
L06	0E00846A	BT 3x8 ⊕ Pan (Chromate)	3

5.16. Sub Mechanism Ass'y (F01)

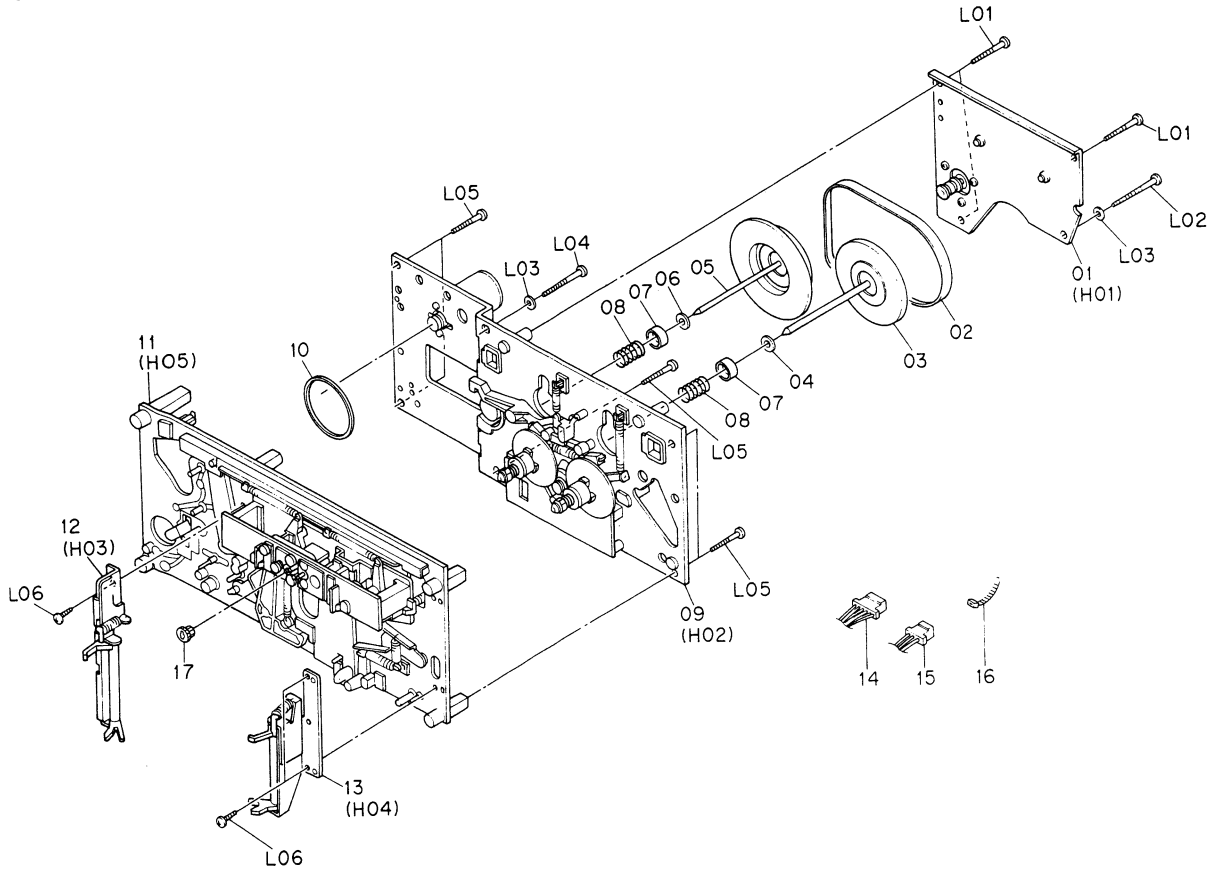


Fig. 5.16

5.17. Record Protector Switch Ass'y (G01)

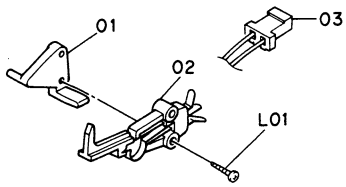


Fig. 5.17

5.18. Flywheel Holder Ass'y (H01)

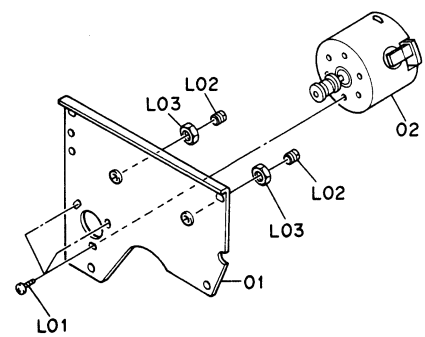


Fig. 5.18

Schematic Ref. No.	Part No.	Description	Q'ty
G01	CA08510A	Record Protector Switch Ass'y Serial No.: A80301001 -	1
01	0C08539A	Record Protector Switch Arm	1
02	0C08540B	Skeleton Switch	1
03	0B82075B	2P-H Connector	1
L01	0E00840A	BT 2x8 ⊕Pan (Chromate)	1

Schematic Ref. No.	Part No.	Description	Q'ty
H01	CA08017B	Flywheel Holder Ass'y Serial No.: A80301001 -	1
01	0C08013I	Flywheel Holder	1
02	CA08106B	Capstan Motor Ass'y	1
L01	0E00226A	M2.6x4 ⊕Pan (Chromate)	3
L02	0C08068C	Thrust Screw	2
L03	0C03857A	Lock Nut	2

5.19. Sub Mechanism Chassis Ass'y (H02)

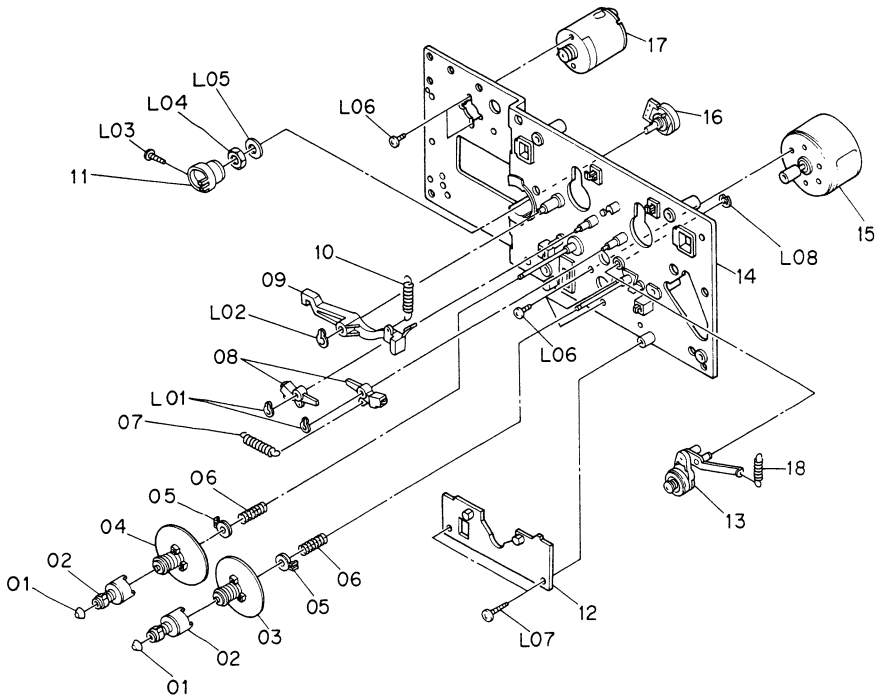


Fig. 5.19

5.20. Lock Arm L Ass'y (H03)

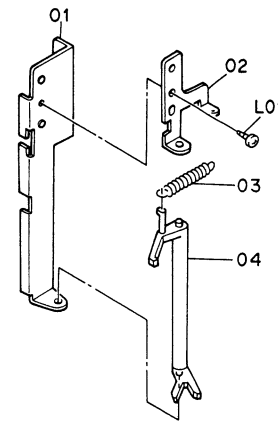


Fig. 5.20

5.21. Lock Arm R Ass'y (H04)

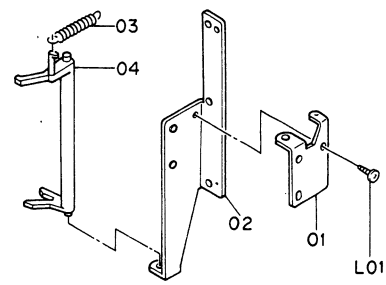


Fig. 5.21

Schematic Ref. No.	Part No.	Description	Q'ty
H02	**CA08513A**	**Sub Mechanism Chassis Ass'y** Serial No.: A80301001 -	**1**
01	0C08039B	Reel Hub Head	2
02	CA08038B	Reel Hub Pulley B Ass'y	2
03	CA08515A	Reel Hub Supply Ass'y	1
04	CA08514A	Reel Hub Take-up Ass'y	1
05	CA08039A	Back Tension Ass'y	2
06	0C08610A	Back Tension Spring D	2
07	0C08129B	Brake Arm Spring	1
08	CA08042A	Brake Arm Ass'y	2
09	0C08030C	Brake Drive Arm	1
10	0C08128A	Brake Drive Arm Spring	1
11	0C08053B	Volume Coupler	1
12	BA05199A	TS Pulse P.C.B. Ass'y	1
13	CA08193A	Idler Arm Ass'y	1
14	CA08194A	Sub Chassis Ass'y B	1
15	CA08242A	Reel Motor Ass'y	1
16	0B07240A	Volume 10K (B)	1
17	CA08527A	Control Motor Ass'y	1
18	0C08266A	Idler Arm Spring B	1
L01	0E00837A	Stopper Ring 3mm	2
L02	0E00838A	Stopper Ring 4mm	1
L03	0E00859A	BT 2.6x6 ⊕ Binding (Chromate)	1
L04	—	Volume Nut	(1)
L05	—	Volume Washer	(1)
L06	0E00226A	M2.6x4 ⊕ Pan (Chromate)	5
L07	0E00831A	BT 3x10 ⊕ Pan (Chromate)	2
L08	0E00698A	E-Ring 2.5mm	1
H03	**CA08505A**	**Lock Arm L Ass'y** Serial No.: A80301001 -	**1**
01	0C08555B	Lock Arm Holder Left A	1
02	0C08556A	Lock Arm Holder Left B	1
03	0C08546A	Lock Arm Spring	1
04	0C08613A	Lock Arm Left	1
—	0C08599A	Cushion	1
L01	0E00941A	BT 3x5 ⊕ Binding (Black Chromate)	1

Schematic Ref. No.	Part No.	Description	Q'ty
H04	**CA08506A**	**Lock Arm R Ass'y** Serial No.: A80301001 -	**1**
01	0C08558A	Lock Arm Holder Right B	1
02	0C08557A	Lock Arm Holder Right A	1
03	0C08546A	Lock Arm Spring	1
04	0C08614A	Lock Arm Right	1
—	0C08599A	Cushion	1
L01	0E00941A	BT 3x5 ⊕ Binding (Black Chromate)	1
H05	**CA08512B**	**Main Mechanism Chassis Ass'y** Serial No.: A80301001 -	**1**
01	CA08517A	Head Mount Base Ass'y	1
02	0C08313A	Pressure Roller Arm Bushing	2
03	CA08464A	Supply Pressure Roller Ass'y	1
04	0C08121A	Supply Pressure Roller Spring	1
05	0C08122C	Supply Pressure Roller Thrust Spring	1
06	CA08465A	Take-up Pressure Roller Ass'y	1
07	0C08250A	Supply Pressure Roller Spring B	1
08	0C08183B	Take-up Pressure Roller Thrust Spring	1
09	CA08530A	Head Base Ass'y	1
10	0C08086B	Head Base Roller	3
11	0C08182A	Pressure Roller Drive Bar B	1
12	CA08027A	Head Base Drive Arm Ass'y	1
13	GA02103A	EOK Erase Head	1
14	CA08026A	Pressure Roller Drive Arm Ass'y	1
15	0C08544B	Cassette Hold Arm	1
16	0C08120A	Cassette Hold Arm Spring	1
17	CA08196A	Back Tension Arm Ass'y	1
18	0C08254A	Back Tension Arm Collar	1
19	CA08347A	Main Chassis Ass'y	1
20	CA08028A	Counter-Load Arm Ass'y	1
21	0C08371A	Back Tension Arm Spring	1
22	0C08152A	Counter-Load Arm Spring Tube	1
23	0C08029H	Control Cam	1
24	0C08186A	Cam Drive Gear	1

5.22. Main Mechanism Chassis Ass'y (H05)

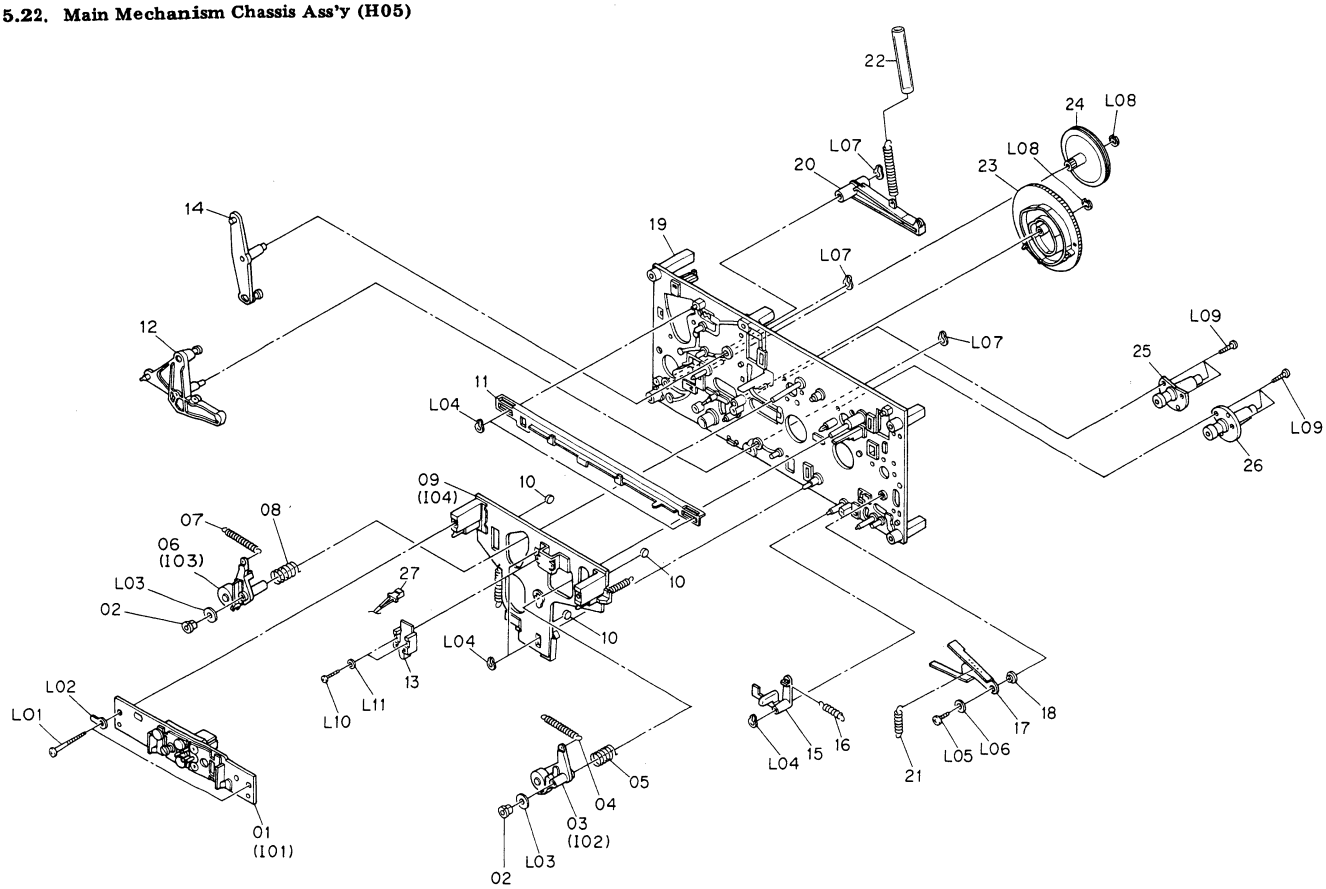


Fig. 5.22

Schematic Ref. No.	Part No.	Description	Q'ty
25	CA08024A	Capstan Flange ϕ2.5 Ass'y	1
26	CA08023A	Capstan Flange ϕ3.0 Ass'y	1
27	0B82166B	2P-H Connector	1
L01	0E00834A	BT 3x30 ⊕Pan (Chromate)	2
L02	0E00895A	Earth Lug 3mm	1
L03	0E00178A	Washer 3.3x8x0.5	2
L04	0E00837A	Stopper Ring 3mm	5
L05	0E00859A	BT 2.6x6 ⊕Binding (Chromate)	1
L06	0C08255A	Washer 2.6mm	1
L07	0E00838A	Stopper Ring 4mm	3
L08	0E00222A	E-Ring 2mm	2
L09	0E00876A	BT 2.6x8 ⊕Pan (Chromate)	6
L10	0E00951A	M1.7x7 ⊕Pan (Black Chromate)	2
L11	0E00952A	Washer 1.7mm	2
I01	**CA08517A**	**Head Mount Base Ass'y** Serial No.: A80301001 -	1
01	0C08621A	Head Height Adjustment Screw	2
02	0C08161B	Spring Stopper	1
03	0C08131C	Head Plate Spring	1
04	0C08619A	Azimuth Alignment Screw	1
05	CA08528A	Head Mount Base Sub Ass'y	1
06	CA08518A	RP-3I Record/Playback Head Ass'y	1

5.23. Head Mount Base Ass'y (I01)

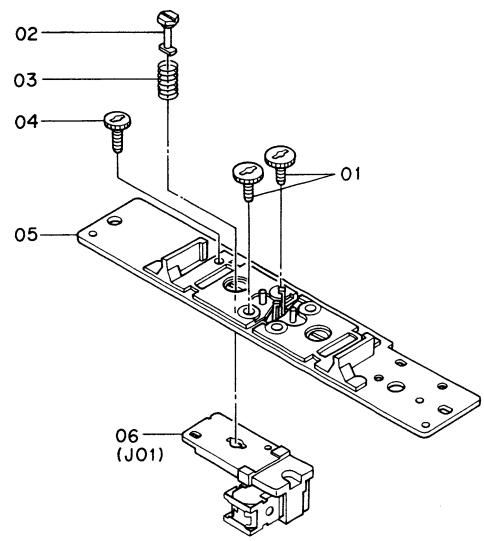


Fig. 5.23

5.24. Supply Pressure Roller Ass'y (I02)

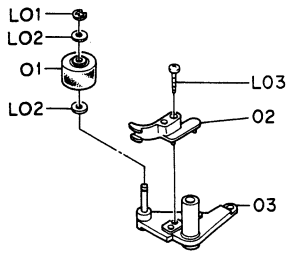


Fig. 5.24

5.25. Take-up Pressure Roller Ass'y (I03)

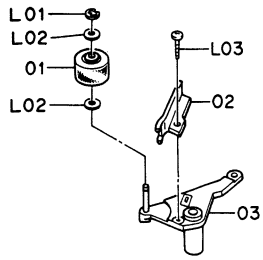


Fig. 5.25

5.26. Head Base Ass'y (I04)

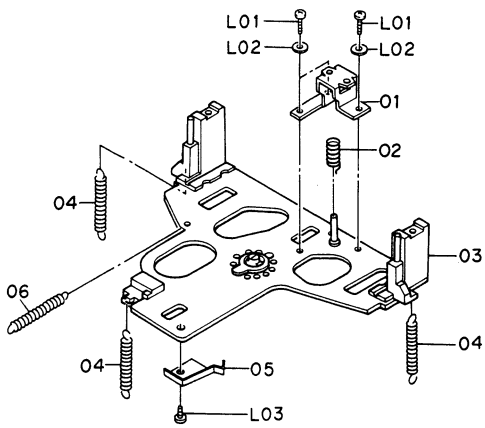


Fig. 5.26

5.27. RP-3I Record/Playback Head Ass'y (J01)

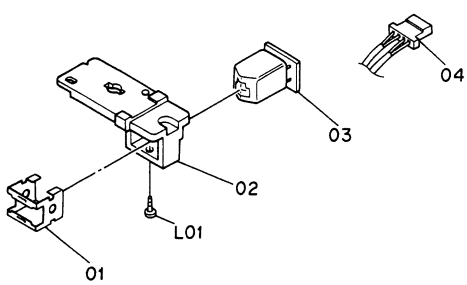


Fig. 5.27

Schematic Ref. No.	Part No.	Description	Q'ty
I02	**CA08464A**	**Supply Pressure Roller Ass'y** Serial No.: A80301001 -	**1**
01	0C08514A	Pressure Roller	1
02	0C08189C	Supply Tape Guide	1
03	CA08061A	Supply Pressure Roller Arm Sub Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT 2x8 ⊕Pan (Black Chromate)	1
I03	**CA08465A**	**Take-up Pressure Roller Ass'y** Serial No.: A80301001 -	**1**
01	0C08514A	Pressure Roller	1
02	0C08181C	Take-up Tape Guide	1
03	CA08073B	Take-up Pressure Roller Arm Sub Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT 2x8 ⊕Pan (Black Chromate)	1
I04	**CA08530A**	**Head Base Ass'y** Serial No.: A80301001 -	**1**
01	0C08158D	Erase Head Hold Plate	1
02	0C08166A	Erase Head Hold Plate Spring	1
03	CA08003R	Head Base Ass'y	1
04	0C08175A	Head Base L Spring	3
05	0C08622A	Cassette Hold Spring	1
06	0C08143C	Head Base Drive Arm Spring	1
L01	0E00909A	M2x6 ⊕Pan (Black Chromate)	3
L02	0E00117A	Washer 2x4.3x0.4	3
L03	0E00853A	BT 2x3 ⊕Pan (Chromate)	1
J01	**CA08518A**	**RP-3I Record/Playback Head Ass'y** Serial No.: A80301001 -	**1**
01	0C08607A	Pad Lifter 3I	1
02	0C08606A	Head Plate 3I	1
03	0G01385A	RP-3I Record/Playback Head	1
04	0B82194C	4P-H Connector	1
L01	0E00887A	M1.7x4 ⊕Pan (Black Chromate)	1

6. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
3. Following transistors are interchangeable with each other.
   a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
   b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
4. Abbreviation for part name:
   TR — Transistor, SiD — Silicon Diode, GD — Germanium Diode, ZD — Zener Diode
   RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor, RW — Wire Wound Resistor
   CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor, CT — Tantalum Capacitor, CM — Film Capacitor, C — Mica Capacitor

6.1. Power Switch P.C.B. Ass'y

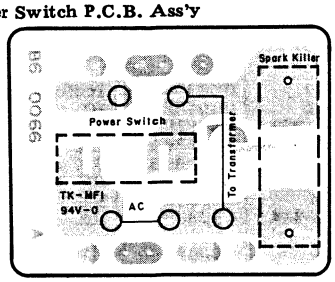


Fig. 6.1

6.2. Fuse P.C.B. Ass'y

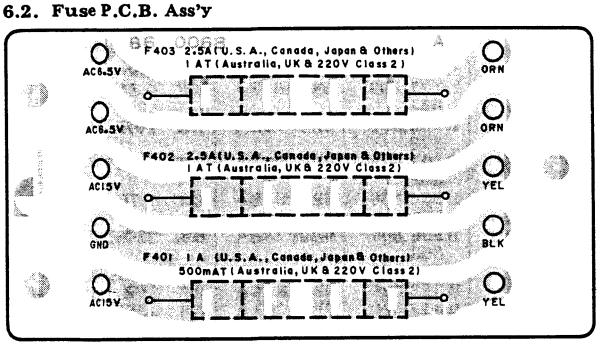

F403 2.5A (U.S.A., Canada, Japan & Others) 1 AT (Australia, UK & 220V Class 2)
AC6.5V
ORN
F402 2.5A (U.S.A., Canada, Japan & Others) 1 AT (Australia, UK & 220V Class 2)
AC15V
YEL
GND
BLK
F401 1 A (U.S.A., Canada, Japan & Others) 500mAT (Australia, UK & 220V Class 2)

Fig. 6.2

Note: Fuse P.C.B. (0B60068A) is included in DC Power Supply P.C.B. Ass'y. Fuses are included in synthesis mechanism parts list.

6.3. Lid Lamp P.C.B. Ass'y

Mounting diagram is omitted.

6.4. TS Pulse P.C.B. Ass'y

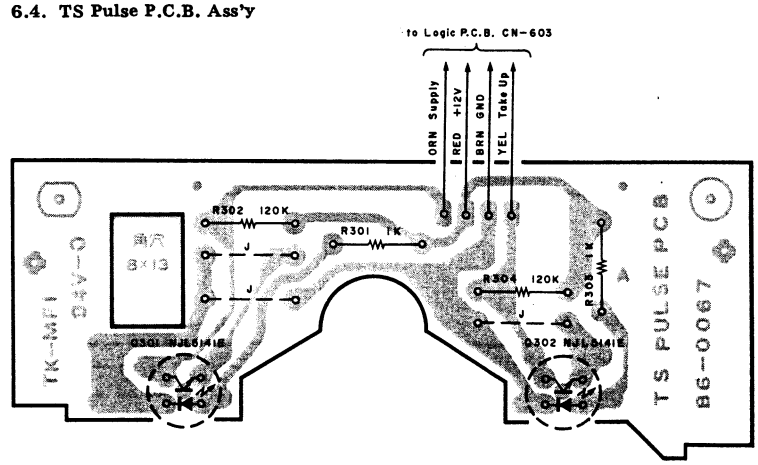


Fig. 6.3

Schematic Ref. No.	Part No.	Description
SW1	BA05188A	Power Switch P.C.B. Ass'y (RX303 (U.S.A. & Canada))
	BA05150A	Power Switch P.C.B. Ass'y (RX303 (Japan)
	BA05189A	Power Switch P.C.B. Ass'y (RX303 (Others & Australia) & RX303E)
	0B60066A	Power Switch P.C.B.
	0B70002A	Power Switch
	0B08342A	Spark Killer (RX303 (U.S.A. & Canada)) (1)
	0B08363A	Spark Killer (RX303 (Japan)) (1)
	0B08445A	Spark Killer (RX303 (Others & Australia) & RX303E) (1)
	0B08359A	Spark Killer Cover (RX303 (Others & Australia) & RX303E) (1)
	0J04789A	Power Switch Holder (1)
	0E00612A	M3x6 ⊕Pan (2A) (2)
	0E00752A	Eyelet 2x3 (2)
PL601 CN610	BA05143A	Lid Lamp P.C.B. Ass'y
	0B60055A	Lid Lamp P.C.B.
	0B90010A	Lamp 12V 70 mA
	0B82205A	2P-H Connector
	0J04738A	Lamp Holder (1)
Q301,302		
R301,303		
R302,304		
	BA05199A	TS Pulse P.C.B. Ass'y
	0B60067A	TS Pulse P.C.B.
	0B06393A	Photo Reflector NJL 5141E
	0B01857A	RK 1K 1/4W J
	0B05621A	RK 120K 1/4W J
	0B82202A	4P-H Connector (1)

6.5. Volume P.C.B. Ass'y

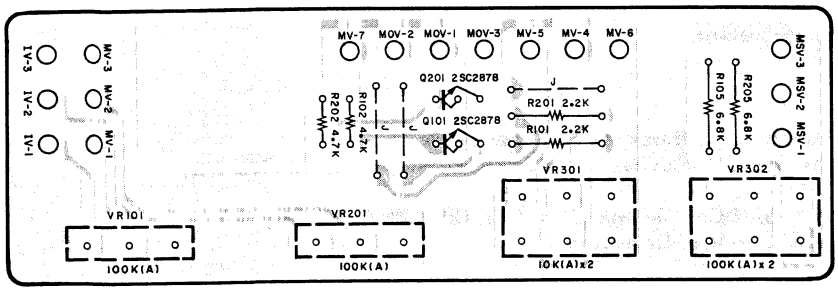


Fig. 6.4

6.6. Indicator P.C.B. Ass'y

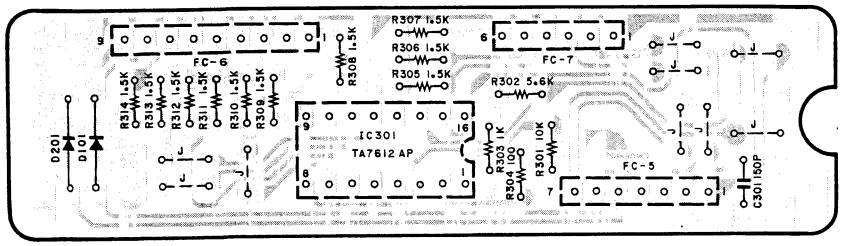


Fig. 6.5

6.7. Switch P.C.B. Ass'y

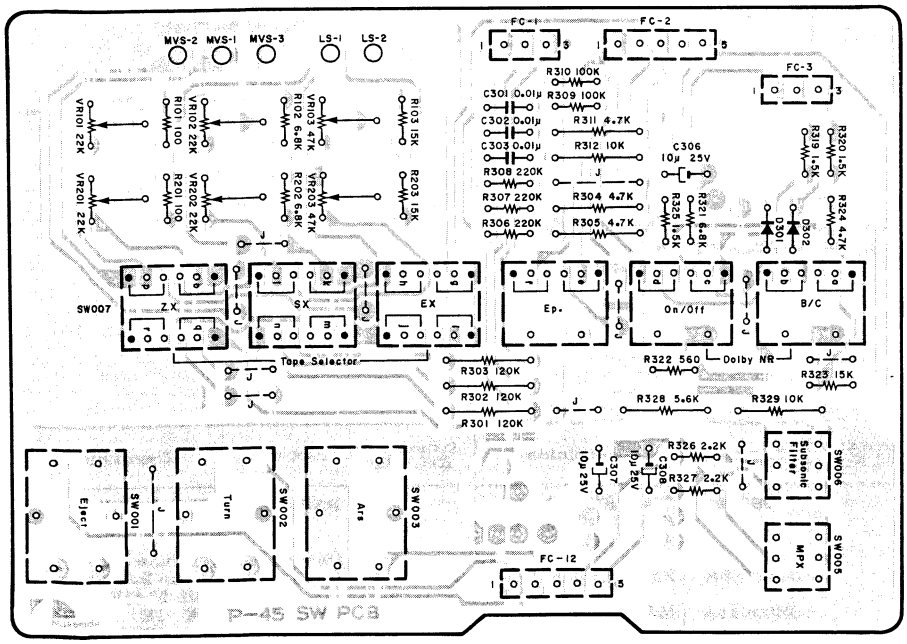


Fig. 6.6

Schematic Ref. No.	Part No.	Description
	BA05141A	**Volume P.C.B. Ass'y**
	0B60053A	Volume P.C.B.
Q101,201	0B06299A	TR 2SC2878
VR101,201	0B30004A	Slide Volume 100K (A)
VR301	0B30003A	Slide Volume 10K (A)x2
VR302	0B07416A	Slide Volume 100K (A)x2
R101,201	0B05622A	RK 2.2K 1/4W J
R102,202	0B09693A	RK 4.7K 1/6W J
R105,205	0B01682A	RK 6.8K 1/4W J
	0J04791A	Volume Holder (1)
	0J04793A	Shield Plate (1)
	BA05142A	**Indicator P.C.B. Ass'y**
	0B60054A	Indicator P.C.B.
IC301	0B06369A	IC TA7612AP
D101,201	0B06181A	SiD 1SS53
R301	0B09701A	RK 10K 1/6W J
R302	0B09695A	RK 5.6K 1/6W J
R303	0B09677A	RK 1K 1/6W J
R304	0B09653A	RK 100 1/6W J
R305-314	0B09681A	RK 1.5K 1/6W J (10)
C301	0B09281A	CC 150P 50V K
	BA05140A	**Switch P.C.B. Ass'y**
	0B60052A	Switch P.C.B.
D301,302	0B06398A	SiD 1SS176
VR101,102 201,202	0B32009A	Semi-fixed VR 22K
VR103,203	0B32010A	Semi-fixed VR 47K
R101,201	0B09653A	RK 100 1/6W J
R102,202 321	0B09697A	RK 6.8K 1/6W J
R103,203 323	0B09705A	RK 15K 1/6W J
R301,302 303	0B05621A	RK 120K 1/4W J
R304,305 311	0B01846A	RK 4.7K 1/4W J
R306,307 308	0B09733A	RK 220K 1/6W J
R309,310	0B09725A	RK 100K 1/6W J
R312,329	0B01888A	RK 10K 1/4W J
R319,320 325	0B09681A	RK 1.5K 1/6W J
R322	0B09671A	RK 560 1/6W J
R324	0B09693A	RK 4.7K 1/6W J
R326,327	0B09685A	RK 2.2K 1/6W J
R328	0B01887A	RK 5.6K 1/4W J
C301,302 303	0B05681A	CM 0.01μ 50V J
C306,307 308	0B01674A	CE 10μ 25V
SW001,002 003	0B07459A	Tact Switch
SW005,006	0B70014A	Push Switch
SW007	0B70015A	Push Switch
FC1	0B82095B	Ribbon Cable 3P
FC2	0B82167A	Ribbon Cable 5P
FC3	0B82168A	Ribbon Cable 3P
FC12	0B82169A	Ribbon Cable 5P
	0B81010A	Dip Mate 3P (2)
	0B81012A	Dip Mate 5P (2)

6.8. Control P.C.B. A Ass'y

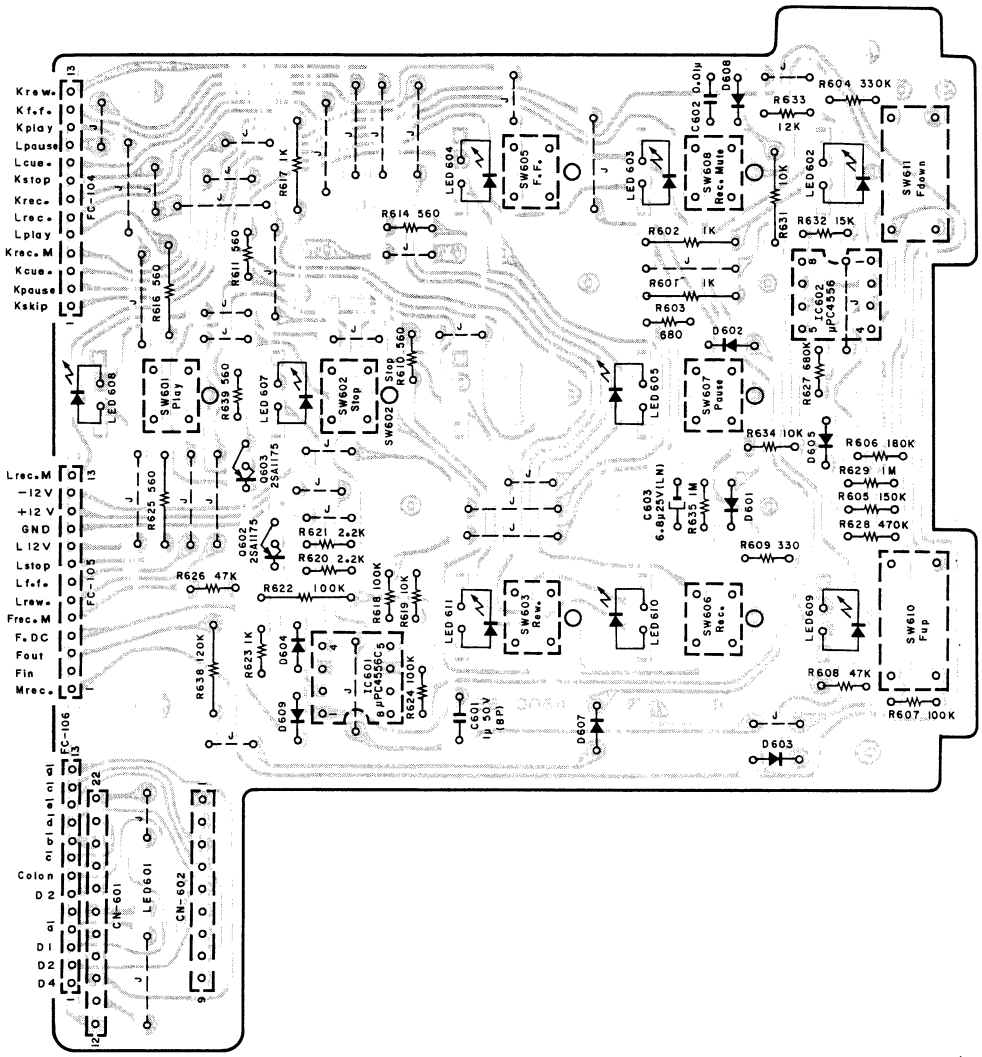


Fig. 6.7

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA05148A	Control P.C.B. A Ass'y	R610,611 614,639	0B09671A	RK 560 1/6W J
	0B60064B	Control P.C.B. A	R616,625	0B05575A	RK 560 1/4W J
IC601,602	0B06216A	IC μPC4556C	R619,634	0B09701A	RK 10K 1/6W J
Q602,603	0B06455A	TR 2SA1175	R620,621	0B09685A	RK 2.2K 1/6W J
LED601	0B06326A	Counter LED	R622	0B01889A	RK 100K 1/4W J
LED602 603,609 610	0B06333A	LED TLR124A RED	R623	0B09677A	RK 1K 1/6W J
			R627	0B09745A	RK 680K 1/6W J
			R628	0B09741A	RK 470K 1/6W J
LED604 605,607 608,611	0B06334A	LED TLG124A GRN	R629,635	0B09749A	RK 1M 1/6W J
			R631	0B01888A	RK 10K 1/4W J
			R632	0B09705A	RK 15K 1/6W J
			R633	0B09703A	RK 12K 1/6W J
D601,602 603,604 605,607 608,609	0B06398A	SiD 1SS176	R638	0B05621A	RK 120K 1/4W J
			C601	0B09187A	CE 1μ 50V (BP)
			C602	0B05681A	CM 0.01μ 50V J
			C603	0B40183A	CE 6.8μ 25V K (LN)
R601,602 617	0B01857A	RK 1K 1/4W J	SW601,602 603,605 606,607 608	0B70004A	Touch Switch 4.3mm
R603	0B09673A	RK 680 1/6W J			
R604	0B09737A	RK 330K 1/6W J			
R605	0B09729A	RK 150K 1/6W J	SW610,611	0B70013A	Tact Switch
R606	0B09731A	RK 180K 1/6W J	CN601	0B81017A	IC Socket 11P
R607,618 624	0B09725A	RK 100K 1/6W J	CN602	0B81016A	IC Socket 9P
				0J04797A	LED House (9)
R608,626	0B09717A	RK 47K 1/6W J			
R609	0B09665A	RK 330 1/6W J			

6.9. Control P.C.B. B Ass'y

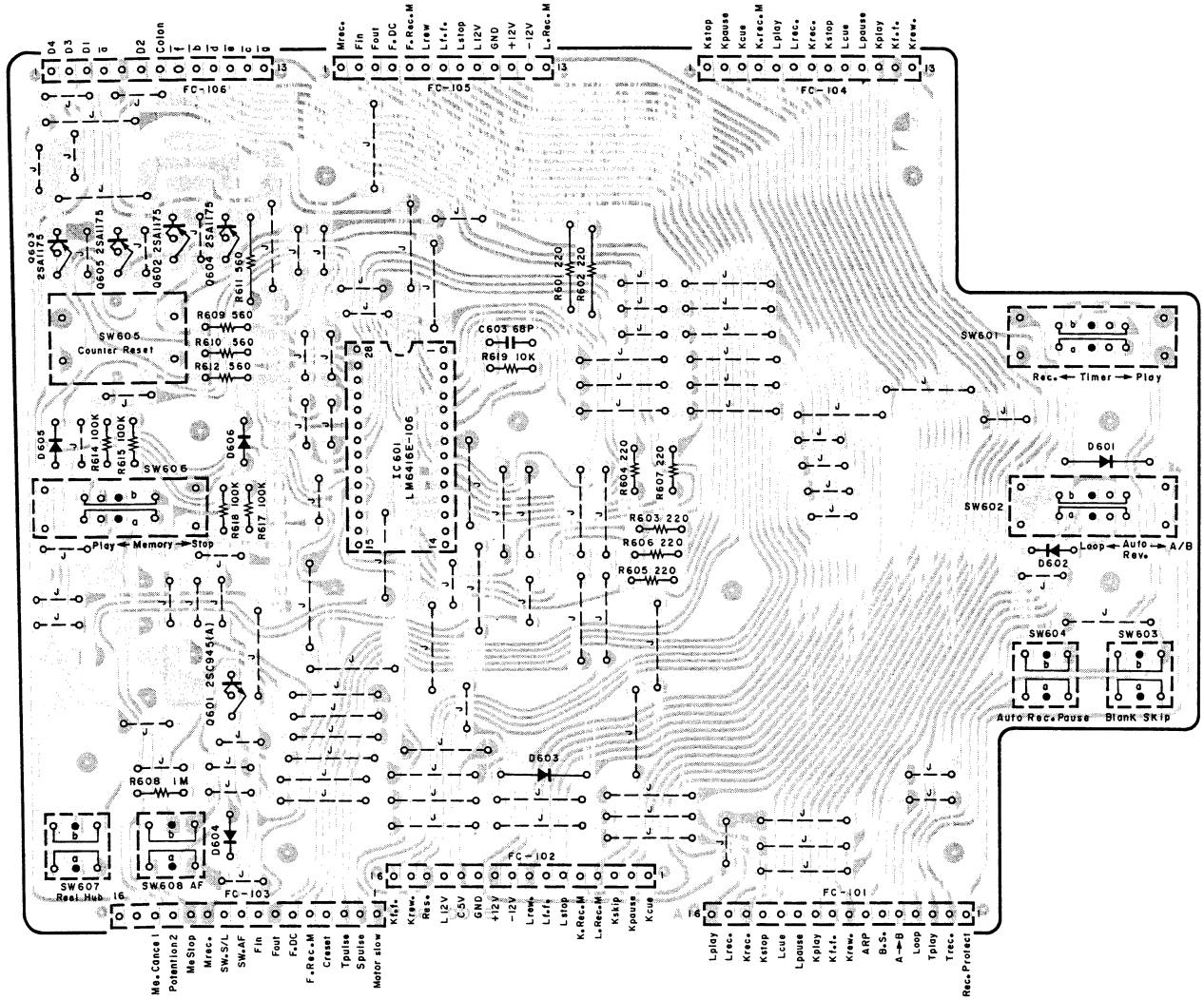


Fig. 6.8

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA05149A	Control P.C.B. B Ass'y	SW603,607 608	0B70014A	Push Switch
			SW605	0B07459A	Tact Switch
	0B60065A	Control P.C.B. B	FC101,102 103	0B82197A	Flat Cable 16P
IC601	0B06368A	IC LM6416E-106	FC104,105 106	0B82198A	Flat Cable 13P
Q601	0B06100A	TR 2SC945A (K,P,Q)		0J04809A	P.C.B. Himelon (1)
Q602,603 604,605	0B06455A	TR 2SA1175			
D601,603	0B06181A	SiD 1SS53			
D602,604 605,606	0B06398A	SiD 1SS176			
R601,602	0B01933A	RK 220 1/4W J			
R603,604 605,606 607	0B09661A	RK 220 1/6W J			
R608	0B09749A	RK 1M 1/6W J			
R609,610 612	0B09671A	RK 560 1/6W J			
R611	0B05575A	RK 560 1/4W J			
R614,615 617,618	0B09725A	RK 100K 1/6W J			
R619	0B09701A	RK 10K 1/6W J			
C603	0B09393A	CC 68P 50V J			
SW601,602 606	0B07437A	Slide Switch 2-3			

6.10. DC Power Supply P.C.B. Ass'y

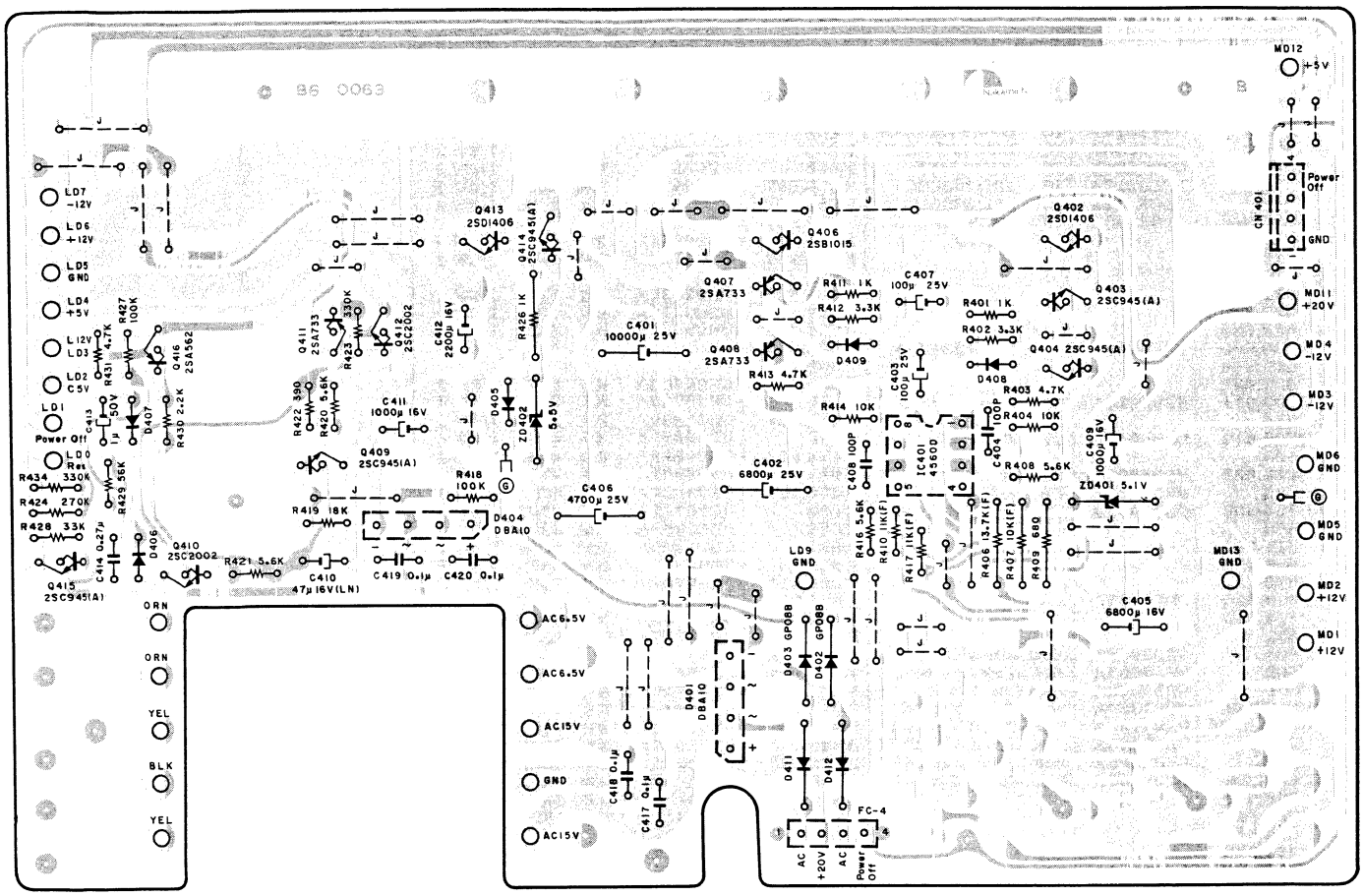


Fig. 6.9

Schematic Ref. No.	Part No.	Description
	BA05147A	DC Power Supply P.C.B. Ass'y
	0B60063B	DC Power Supply P.C.B.
IC401	0B06217A	IC 4560D
Q402,413	0B06452A	TR 2SD1406
Q403,404 409,414 415	0B06100A	TR 2SC945A (K,P,Q)
Q406	0B06451A	TR 2SB1015 (Y)
Q407,408 411	0B06013A	TR 2SA733 (P,Q)
Q410,412	0B06322A	TR 2SC2002 (K,L)
Q416	0B01426A	TR 2SA562 (O,Y)
ZD401	0B12002A	ZD 5.1V RD5.1JB2T
ZD402	0B06290A	ZD 5.5V RD5.6EB2
D401,404	0B06282A	Diode Bridge DBA10
D402,403	0B06109A	SiD GP08B
D405,406 407,408 409	0B06398A	SiD 1SS176
D411,412	0B06181A	SiD 1SS53
R401,411	0B09677A	RK 1K 1/6W J
R402,412	0B09689A	RK 3.3K 1/6W J
R403,413 431	0B09693A	RK 4.7K 1/6W J
R404,414	0B09701A	RK 10K 1/6W J
R406	0B09523A	RM 13.7K 1/4W F
R407	0B09203A	RM 10K 1/4W F
R408,416 420,421	0B09695A	RK 5.6K 1/6W J
R409	0B05794A	RK 680 1/4W J
R410,417	0B22347A	RM 11K 1/4W F
R418,427	0B09725A	RK 100K 1/6W J
R419	0B09707A	RK 18K 1/6W J
R422	0B09667A	RK 390 1/6W J
R423,434	0B09737A	RK 330K 1/6W J
R424	0B09735A	RK 270K 1/6W J
R426	0B01857A	RK 1K 1/4W J
R428	0B09713A	RK 33K 1/6W J
R429	0B09719A	RK 56K 1/6W J
R430	0B09685A	RK 2.2K 1/6W J
C401	0B40179A	CE 10000μ 25V
C402	0B09374A	CE 6800μ 25V
C403,407	0B01272A	CE 100μ 25V
C404,408	0B41071A	CC 100P 50V J
C405	0B09798A	CE 6800μ 16V
C406	0B09799A	CE 4700μ 25V
C409,411	0B01397A	CE 1000μ 16V
C410	0B09218A	CE 47μ 16V (LN)
C412	0B40180A	CE 2200μ 16V
C413	0B01405A	CE 1μ 50V
C414	0B09873A	CF 0.27μ 50V J
C417,418 419,420	0B09292A	CC 0.1μ 50V Z
	0B81011A	Dip Mate 4P
	0B82177A	4P Flat Cable
	0B60068A	Fuse P.C.B. (1)
	0B08759E	Heat Sink (1)
	0B90005A	Insu-Lock (1)
	0E00037A	Earth Lug B-5 (1)
	0E00507A	Nut Hex. M3 (Chromate) (3)
	0E00607A	M3x8 ⊕Pan (3A) (3)
	0E00754A	M3x8 ⊕Pan (1)
	0E00608A	M3x10 ⊕Pan (3A) (Black Chromate) (3)

Schematic Ref. No.	Part No.	Description
	BA05146A	Logic P.C.B. Ass'y
	0B60062B	Logic P.C.B.
IC601	0B11019A	IC LM6402G-261
IC602	0B11025A	IC LM6402G-282
IC603	0B11040A	IC LM6417E-338
IC604,607	0B06124B	IC NJM4558D
IC605	0B06317A	IC μPD4030BC
IC606	0B06143A	IC μPD4001BC
Q603,610 614,615 616,617 618,620 621,626 627,629 630,633	0B06100A	TR 2SC945A (K,P,Q)
Q604,606 607,619 622,631	0B06013A	TR 2SA733 (P,Q)
Q608,611 624	0B06316A	TR 2SD882 (P,Q)
Q609,612 625	0B06303A	TR 2SB772 (P,Q)
Q613,632	0B06202A	TR 2SA562TM (Y)
Q623	0B06129A	FET 2SK117
D604-606 608 611-613 616-620 623-631	0B06398A	SiD 1SS176 (21)
D609,610 614,615 621	0B06181A	SiD 1SS53
X601	0B08908A	Xtal 400 kHz
X602	0B90009A	Xtal 4.1943 MHz
T601	0B51048A	Bias Osc. Block
VR602,607	0B07329A	Semi-fixed VR 2K
VR603,606	0B07256A	Semi-fixed VR 10K
VR604	0B07405A	Semi-fixed VR 200K
VR605	0B07269A	Semi-fixed VR 50K
R607,608 609,610 611,612 613,627 628,640 641,686 689,692 910	0B09737A	RK 330K 1/6W J
R614,615 629,697 698,901 902,931 942,944	0B09749A	RK 1M 1/6W J
R616,621	0B05776A	RK 1M 1/4W J
R617,619 622,635 653,679 909,914 918,920 959	0B09701A	RK 10K 1/6W J
R618,620 637,638 639,658 687,695 903,904 905,906 913,915 916,922 923,941 943,953 965	0B09725A	RK 100K 1/6W J
R623,677 940	0B01888A	RK 10K 1/4W J
R624,625 907	0B05627A	RK 330K 1/4W J
R626,668	0B09717A	RK 47K 1/6W J
R630,934 935	0B09711A	RK 27K 1/6W J
R631,632	0B05743A	RK 27K 1/4W J
R633	0B09712A	RK 30K 1/6W J
R634,958	0B09707A	RK 18K 1/6W J
R636,646 678,957	0B09689A	RK 3.3K 1/6W J
R642	0B22420A	RM 47.5K 1/6W F
R643	0B22515A	RM 332K 1/6W F
R644	0B01887A	RK 5.6K 1/4W J
R645,661	0B09699A	RK 8.2K 1/6W J
R649	0B22444A	RM 76.8K 1/6W F
R650	0B05509A	RK 33K 1/4W J
R651,652 665,688 696	0B09713A	RK 33K 1/6W J
R654	0B09731A	RK 180K 1/6W J
R655	0B05615A	RK 22K 1/4W J
R656,657	0B09927A	RM 100K 1/6W F
R659,663 684,933	0B05671A	RK 2.2M 1/4W J
R660	0B09214A	RF 1 1/4W J
R662,932 952	0B09733A	RK 220K 1/6W J
R664,936	0B09727A	RK 120K 1/6W J
R666	0B09716A	RK 43K 1/6W J
R667,675 926,928 939	0B09685A	RK 2.2K 1/6W J
R669	0B09703A	RK 12K 1/6W J
R670	0B09723A	RK 82K 1/6W J
R671,921	0B01889A	RK 100K 1/4W J
R672	0B09697A	RK 6.8K 1/6W J
R673,951	0B09693A	RK 4.7K 1/6W J
R674	0B09661A	RK 220 1/6W J
R676,963	0B09321A	RF 4.7 1/4W J
R680	0B09741A	RK 470K 1/6W J
R681	0B22493A	RM 220K 1/6W F
R682	0B09300A	RM 150K 1/4W F
R683	0B09315A	RM 332K 1/4W F
R685,911 927,929	0B09709A	RK 22K 1/6W J
R690,693	0B09745A	RK 680K 1/6W J
R691,694 937,938	0B09747A	RK 820K 1/6W J
R908,954	0B09695A	RK 5.6K 1/6W J
R912	0B09719A	RK 56K 1/6W J
R917	0B09749A	RK 1M 1/6W J
R930	0B09726A	RK 110K 1/6W J
R945	0B22506A	RM 280K 1/6W F
R946,947	0B22531A	RM 453K 1/6W F
R948	0B22470A	RM 133K 1/6W F
R955	0B09677A	RK 1K 1/6W J
R956	0B09671A	RK 560 1/6W J
R960	0B09831A	RF 22 1W J
R961	0B09936A	RF 10 1/2W J
R962	0B01857A	RK 1K 1/4W J
R964	0B09705A	RK 15K 1/6W J
C603,621 622	0B01412A	CE 10μ 16V
C605	0B05557A	CM 0.015μ 50V J
C606,607 617	0B05652A	CM 4700P 50V J
C608,609	0B09283A	CC 220P 50V K
C610,611	0B01402A	CE 4.7μ 25V
C612	0B01502A	CE 330μ 16V
C613,623	0B09277A	CC 10P 50V J
C614,615	0B01405A	CE 1μ 50V
C616	0B09372A	CE 2.2μ 50V
C619	0B09279A	CC 22P 50V K
C620	0B41187A	CC 39P 50V K
C624	0B41188A	CP 6200P 100V G
C625	0B01400A	CE 100μ 16V
C626	0B09187A	CE 1μ 50V (BP)
C628	0B09292A	CC 0.1μ 50V Z
CN601	0B08653A	3P-T Post
CN602	0B08642A	6P-T Post
CN603	0B08654A	4P-T Post
CN604	0B81023A	2P-T Post
CN605,607	0B08656A	2P-T Post
CN606	0B08724A	5P-T Post
CN608	0B02356A	JP Connector 12P
CN609	0B08644A	8P-T Post
CN610	0B02280A	2P-T Post
	0B81086A	Wire Mate 3P (6)
	0B08964A	TR Mica TO-126 (2)
	0E00507A	Nut Hex. M3 (Chromate) (2)
	0E00521A	M3x8 ⊕Pan (Black Chromate) (2)
	0J04485A	Heat Sink B (1)

6.11. Logic P.C.B. Ass'y

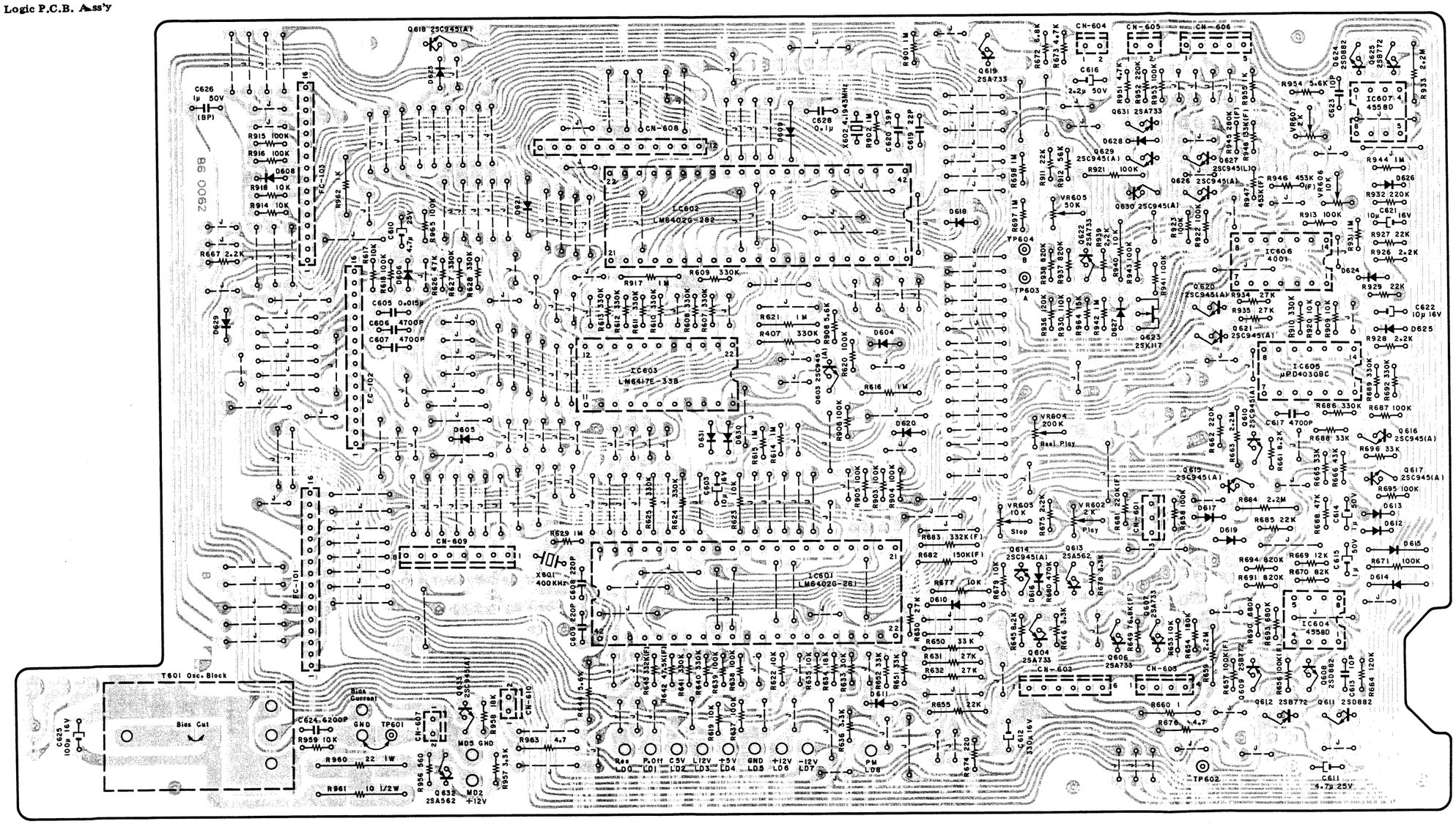


Fig. 6.10

6.12. Main P.C.B. Ass'y

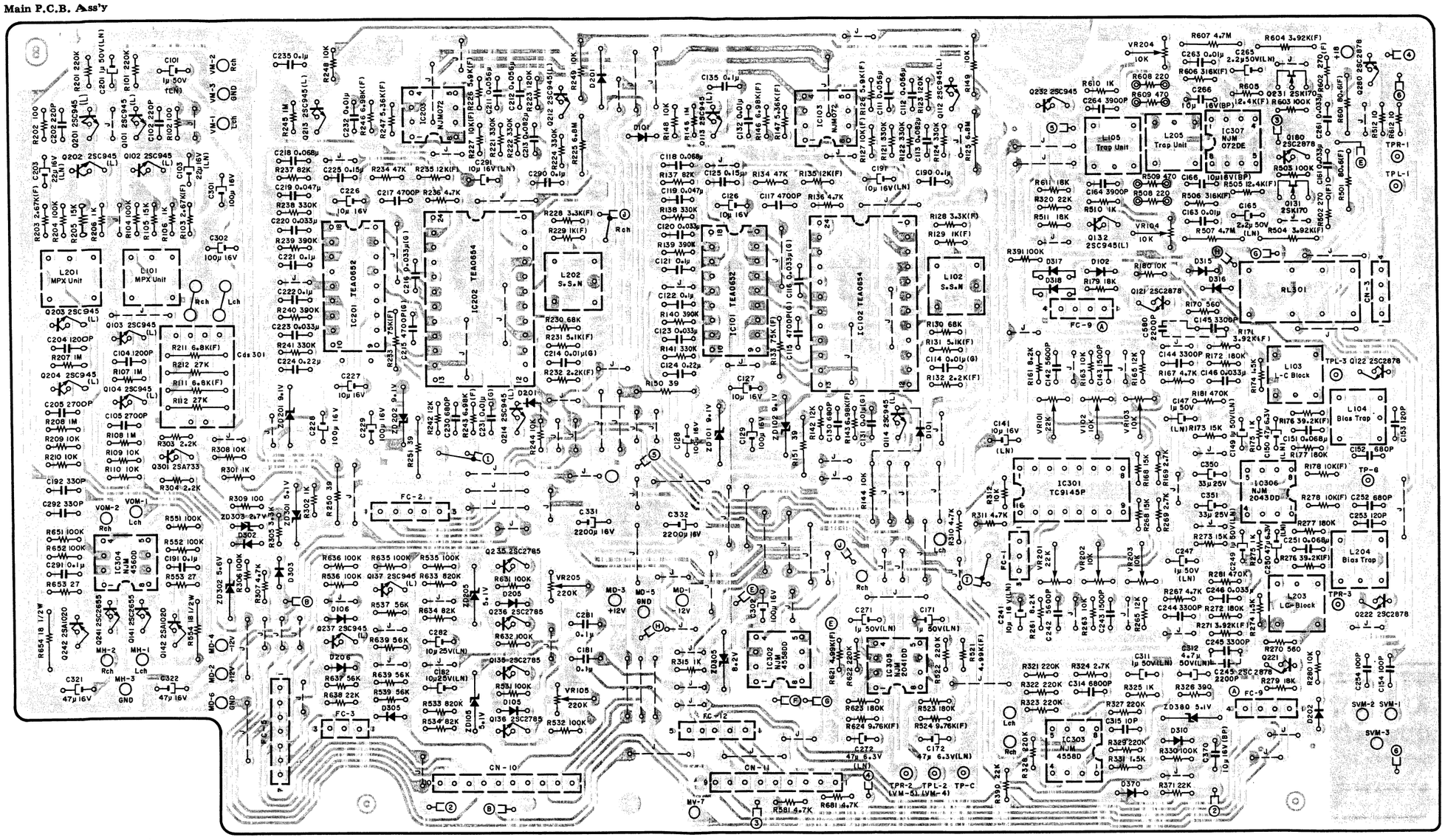


Fig. 6.11

Schematic Ref. No.	Part No.	Description
	BA05139A	**Main P.C.B. Ass'y**
	— PB Eq. Amp. —	
IC302	0B06146A	IC NJM4558DD
IC307	0B11005A	IC NJM072DE
Q131,231	0B06376A	FET 2SK170 (G,R)
Q132,232	0B01872A	TR 2SC945L (P,Q)
Q180,280	0B06299A	TR 2SC2878
ZD305	0B06418A	ZD 8.2V RD8.2JB2
D315,316 317,318	0B06398A	SiD 1SS176
VR104,204	0B32008A	Semi-fixed VR 10K
L105,205	0B06717A	Trap Unit
R315,510 610	0B09677A	RK 1K 1/6W J
R320	0B09709A	RK 22K 1/6W J
R391,503 603	0B09725A	RK 100K 1/6W J
R501,601	0B22553A	RM 80.6 1/4W F
R502,602	0B22162A	RM 270 1/6W F
R504,604	0B09768A	RM 3.92K 1/4W F
R505,605	0B22353A	RM 12.4K 1/6W F
R506,606	0B22512A	RM 316K 1/6W F
R507,607	0B22548A	RM 4.7M 1/4W J
R508,608	0B09661A	RK 220 1/6W J
R509,609	0B09669A	RK 470 1/6W J
R511,611	0B09707A	RK 18K 1/6W J
R512,612	0B09629A	RK 10 1/4W J
R581,681	0B09693A	RK 4.7K 1/6W J
C161,261	0B05583A	CM 0.033μ 50V J
C163,263	0B09591A	CP 0.01μ 100V J
C164,264	0B01804A	CM 3900P 50V J
C165,265	0B09933A	CE 2.2μ 50V (LN)
C166,266	0B09163A	CE 10μ 16V (BP)
C302	0B01400A	CE 100μ 16V
RL301	0B07426A	HB Relay
CN3	0B08654A	4P-T Post
	— Rec. Eq. Amp. —	
IC306	0B06387A	IC NJM2043DD
Q121,122 221,222	0B06299A	TR 2SC2878
D102,202	0B06398A	SiD 1SS176
L103,203	0B51046A	L-C Block
L104,204	0B00068A	Trap Coil 10.5mH
R170,270	0B09671A	RK 560 1/6W J
R171,271	0B22296A	RM 3.92K 1/6W F
R172,177 272,277	0B09731A	RK 180K 1/6W J
R173,273	0B09705A	RK 15K 1/6W J
R174,274	0B09681A	RK 1.5K 1/6W J
R175,275	0B09677A	RK 1K 1/6W J
R176,276	0B22410A	RM 39.2K 1/6W F
R178,278	0B22343A	RM 10K 1/6W F
R179,279	0B09707A	RK 18K 1/6W J
R180,280	0B09701A	RK 10K 1/6W J
R181,281	0B09741A	RK 470K 1/6W J
C145,245	0B01914A	CM 3300P 50V J
C146,246	0B05583A	CM 0.033μ 50V J
C147,149 247,249	0B09814A	CE 1μ 50V (LN)
C150,250	0B09815A	CE 47μ 6.3V (LN)
C151,251	0B05682A	CM 0.068μ 50V J
C152,252	0B09235A	CP 680P 100V J
C153,253	0B09486A	C 120P 50V J
C154,254	0B09302A	C 100P 50V J
C350,351	0B09251A	CE 33μ 25V
C580,680	0B01802A	CM 2200P 50V J
	— Rec. Level —	
IC301	0B11027A	IC TC9145P
VR101,201	0B32009A	Semi-fixed VR 22K
VR102,103 202,203	0B32008A	Semi-fixed VR 10K
R161,261	0B09699A	RK 8.2K 1/6W J
R163,263 312	0B09701A	RK 10K 1/6W J
R165,265	0B09703A	RK 12K 1/6W J
R167,267 310,311	0B09693A	RK 4.7K 1/6W J
R168,268	0B09705A	RK 15K 1/6W J
R169,269	0B09687A	RK 2.7K 1/6W J
C141,241	0B09816A	CE 10μ 16V (LN)
C142,242	0B05659A	CM 5600P 50V J
C143,243	0B05653A	CM 1500P 50V J
C144,244	0B01914A	CM 3300P 50V J

Schematic Ref. No.	Part No.	Description
	— Dolby NR —	
IC101,201	0B06382A	IC TEA0652
IC102,202	0B06383A	IC TEA0654
IC103,203	0B06457A	IC NJM072
Q112,113 114,212	0B01872A	TR 2SC945L (P,Q)
ZD101,102 201,202	0B06232A	ZD 9.1V RD9.1EB2
D101	0B06398A	SiD 1SS176
D201	0B06181A	SiD 1SS53
L102,202	0B06691A	L-C Block YEL
R121,122 124,138 141,221	0B09737A	RK 330K 1/6W J
R123,223	0B09727A	RK 120K 1/6W J
R125,225	0B09347A	RM 6.8M 1/4W F
R126,226	0B22317A	RM 5.9K 1/6W F
R127,227	0B09929A	RM 10K 1/6W F
R128,228	0B22286A	RM 3.3K 1/6W F
R129,229	0B22229A	RM 1K 1/6W F
R130,230	0B09721A	RK 68K 1/6W J
R131,231	0B22309A	RM 5.1K 1/6W F
R132,232	0B22265A	RM 2.2K 1/6W F
R133,233	0B09562A	RM 75K 1/4W F
R134,234	0B09717A	RK 47K 1/6W J
R135,235	0B22351A	RM 12K 1/6W F
R136,236	0B09693A	RK 4.7K 1/6W J
R137,237	0B09723A	RK 82K 1/6W J
R139,140 239,240	0B09739A	RK 390K 1/6W J
R142,242	0B09703A	RK 12K 1/6W J
R143,146 243,246	0B22326A	RM 6.98K 1/6W F
R144,149 249	0B01888A	RK 10K 1/4W J
R145,245	0B09749A	RK 1M 1/6W J
R147,247	0B22312A	RM 5.36K 1/6W F
R148,244 248	0B09701A	RK 10K 1/6W J
R150,151 250,251	0B24022A	RF 39 1/4W J
C111,112 211,212	0B05813A	CM 0.056μ 50V J
C113,213	0B05685A	CM 0.082μ 50V J
C114,131 214,231	0B09312A	CP 0.01μ 100V G
C115,215	0B09191A	CP 4700P 100V G
C116,216	0B09240A	CP 0.033μ 100V G
C117,217	0B09852A	CF 4700P 50V J
C118,218	0B09866A	CF 0.068μ 50V J
C119,219	0B09864A	CF 0.047μ 50V J
C120,123 220,223	0B09862A	CF 0.033μ 50V J
C121,122 135,190 221,222 235,290	0B09868A	CF 0.1μ 50V J
C124,224	0B09872A	CF 0.22μ 50V J
C125,225	0B09870A	CF 0.15μ 50V J
C126,127 226,227	0B01412A	CE 10μ 16V
C128,129 228,229	0B01400A	CE 100μ 16V
C130,230	0B09235A	CP 680P 100V J
C132,232	0B09591A	CP 0.01μ 100V J
C196,296	0B09816A	CE 10μ 16V (LN)
	— Line Amp. —	
IC305	0B11004A	IC NJM2041DD
R521,621	0B22308A	RM 4.99K 1/6W F
R522,622	0B09733A	RK 220K 1/6W J
R523,623	0B09731A	RK 180K 1/6W J
R524,624	0B22342A	RM 9.76K 1/6W F
C171,271	0B09814A	CE 1μ 50V (LN)
C172,272	0B09815A	CE 47μ 6.3V (LN)
	— Line Input —	
Q101-104 201-204	0B01872A	TR 2SC945L (P,Q)
Q301	0B06013A	TR 2SA733 (P,Q)
ZD301	0B06230A	ZD 5.1V RD5.1EB2
ZD302	0B06290A	ZD 5.6V RD5.6EB2
ZD303	0B12112A	ZD 2.7V RD2.7E
D302,303	0B06398A	SiD 1SS176
L101,201	0B06690A	L-C Block BLU
R101,201	0B09733A	RK 220K 1/6W J
R102,202 309	0B09653A	RK 100 1/6W J

Schematic Ref. No.	Part No.	Description
R103,203	0B22275A	RM 2.67K 1/6W F
R104,204 306	0B09725A	RK 100K 1/6W J
R105,205	0B09705A	RK 15K 1/6W J
R106,206 301,302	0B09677A	RK 1K 1/6W J
R107,108 207,208	0B09749A	RK 1M 1/6W J
R109,110 209,210 308	0B09701A	RK 10K 1/6W J
R111,211	0B09529A	RM 6.8K 1/4W F
R112,212	0B05743A	RK 27K 1/4W J
R303,304	0B09685A	RK 2.2K 1/6W J
R305	0B09689A	RK 3.3K 1/6W J
R307	0B09693A	RK 4.7K 1/6W J
C101,201	0B09814A	CE 1μ 50V (LN)
C102,202	0B09247A	C 220P 50V J
C103,203	0B09932A	CE 22μ 16V (LN)
C104,204	0B09845A	CF 1200P 50V J
C105,205	0B09849A	CF 2700P 50V J
C301	0B40078A	CE 100μ 16V
C302	0B01400A	CE 100μ 16V
Cds301	0B06325B	Photocoupler MCD7214F
	— Headphone Amp. —	
IC304	0B06217A	IC NJM4560D
Q141,241	0B06429A	TR 2SC2655 (Y)
Q142,242	0B10015A	TR 2SA1020 (O,Y)
R551,552 651,652	0B09725A	RK 100K 1/6W J
R553,653	0B09384A	RF 27 1/6W J
R554,654	0B09536A	RF 18 1/2W J
C191,291	0B09868A	CF 0.1μ 50V J
C192,292	0B09322A	CP 330P 100V J
C321,322	0B40012A	CE 47μ 16V
	— Meter Amp. —	
Q135,136 235,236	0B06456A	TR 2SC2785
Q137,237	0B01872A	TR 2SC945L (P,Q)
ZD105,205	0B06230A	ZD 5.1V RD5.1EB2
D105,106 205,206 305	0B06398A	SiD 1SS176
VR105,205	0B32026A	Semi-fixed VR 220K
R531,532 535,536 631,632 635,636	0B09725A	RK 100K 1/6W J
R533,633	0B09747A	RK 820K 1/6W J
R534,634	0B09723A	RK 82K 1/6W J
R537,539 637,639	0B09719A	RK 56K 1/6W J
R538,638	0B09709A	RK 22K 1/6W J
C181,281	0B09868A	CF 0.1μ 50V J
C182,282	0B09148A	CE 10μ 25V (LN)
	— Music Sensor —	
IC303	0B06124B	IC NJM4558D
ZD380	0B06230A	ZD 5.1V RD5.1EB2
D310,370	0B06398A	SiD 1SS176
R321,327 328,329	0B09733A	RK 220K 1/6W J
R324	0B09687A	RK 2.7K 1/6W J
R325	0B09683A	RK 1.8K 1/6W J
R326	0B09667A	RK 390 1/6W J
R330	0B09725A	RK 100K 1/6W J
R331	0B09681A	RK 1.5K 1/6W J
R371,390	0B09687A	RK 22K 1/6W J
C311	0B09223A	CE 1μ 50V (LN)
C312	0B09333A	CE 4.7μ 50V (LN)
C314	0B09854A	CF 6800P 50V J
C315	0B09277A	CC 10P 50V K
C370	0B40184A	CE 10μ 16V (BP)
	— Miscellaneous —	
	0B60050B	Main P.C.B.
C331,332	0B40180A	CE 2200μ 16V
FC1,3	0B81086A	Wire Mate 3P
FC2,12	0B81088A	Wire Mate 5P
FC5	0B81090A	Wire Mate 7P
FC9	0B81011A	Dip Mate 4P
CN10	0B81114A	10P-T Post
CN11	0B81113A	9P-T Post

6.13. I/O P.C.B. Ass'y

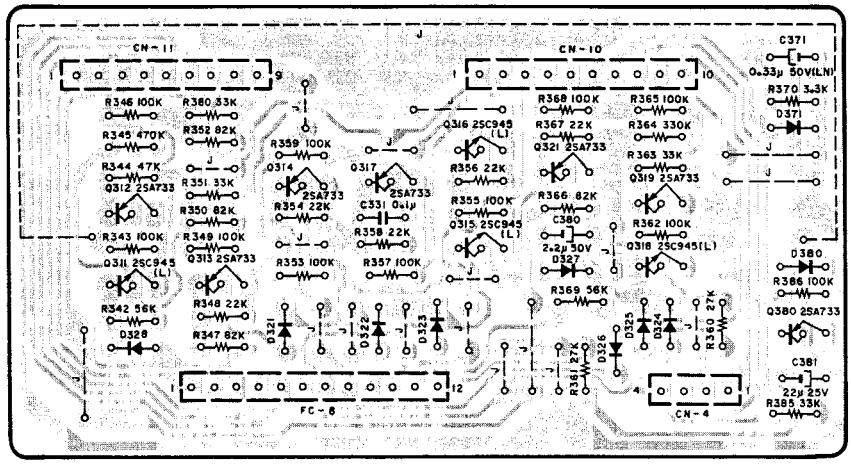


Fig. 6.12

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA05144A	I/O P.C.B. Ass'y	R351,363 380,385	0B09713A	RK 33K 1/6W J
	0B60051A	I/O P.C.B.	R352	0B09699A	RK 8.2K 1/6W J
Q311,315 316,318	0B01872A	TR 2SC945L (P,Q)	R360	0B09711A	RK 27K 1/6W J
			R361	0B05743A	RK 27K 1/4W J
Q312,313 314,317 319,321 380	0B06013A	TR 2SA733 (P,Q)	R364	0B09737A	RK 330K 1/6W J
			R370	0B09689A	RK 3.3K 1/6W J
			C331	0B09868A	CF 0.1μ 50V J
D321-328 371,380	0B06398A	SiD 1SS176 (10)	C371	0B09327A	CE 0.33μ 50V (LN)
			C380	0B09372A	CE 2.2μ 50V
R342,369	0B09719A	RK 56K 1/6W J	C381	0B01527A	CE 22μ 25V
R343,346 349,353 355,357 359,362 365,368 386	0B09725A	RK 100K 1/6W J	CN4	0B81087A	Wire Mate 4P
			CN10	0B81109A	10P-S Post
			CN11	0B81108A	9P-S Post
			FC8	0B82178A	12P Flat Cable
				0E00868A	BT 3x8 ⊕ Binding (Chromate) (1)
				0J04790A	P.C.B. Holder (1)
R344	0B09717A	RK 47K 1/6W J			
R345	0B09741A	RK 470K 1/6W J			
R347,350 366	0B09723A	RK 82K 1/6W J			
R348,354 356,358 367	0B09709A	RK 22K 1/6W J			

7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Caution

(a) If a part is in need of removing (or replacing) for service, it should be remounted (or replaced with specified parts) by the same methods as before after servicing.

(b) The appliance should be used only specified parts for preventing a risk of fire and electric shock and maintaining the characteristics.

(c) Before returning the repaired appliance to a customer, check to insure that the exposed part is accurately insulated from the Power Supply by measuring the leakage current or the insulation resistance between them.

(2) Parts Replacement

Following parts shall be replaced with the specified ones.
Refer to the Parts List.

(a) Power Supply Circuit
Power Cord
Power Transformer: T1

(b) Power Switch P.C.B. Ass'y
Power Switch: SW1
Spark Killer: M2

(c) Fuse P.C.B. Ass'y
Fuses: F401, 402, 403

(d) DC Power Supply P.C.B. Ass'y
Transistors: Q402, 406, 413, 416
Diode Bridges: D401, 404

(e) Logic P.C.B. Ass'y
Transistors: Q608, 609, 611, 612, 624, 625
Fail Safe Type Resistors: R660, 676, 960, 961, 963

(f) Main P.C.B. Ass'y
Fail Safe Type Resistors: R150, 151, 250, 251, 553, 554, 653, 654

7.2. IC Block Diagrams

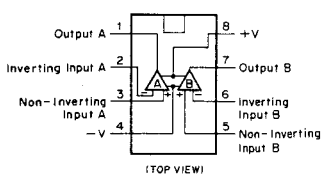


Fig. 7.2.1 Operational Amp. IC 4558D, 4558DD, 4560D, 2041DD, 2043DD, 072, 072DE

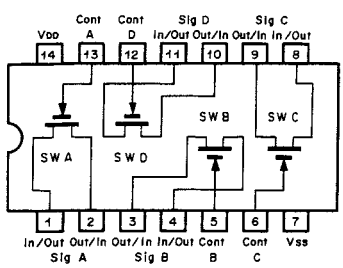


Fig. 7.2.2 Bilateral Switch C-MOS IC μPC4556C

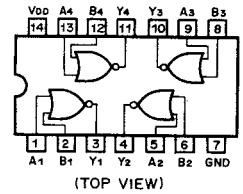


Fig. 7.2.3 NOR Gate C-MOS IC μPD4001BC

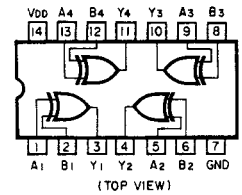


Fig. 7.2.4 Exclusive OR Gate C-MOS IC μPD4030BC

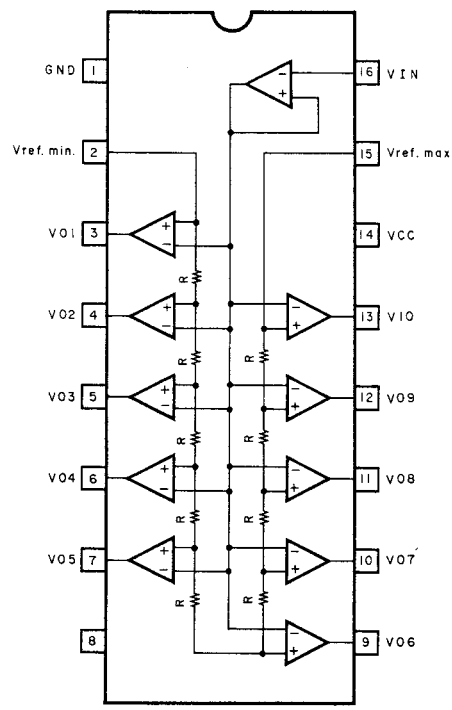


Fig. 7.2.5 Level Meter Driver TA7612AP

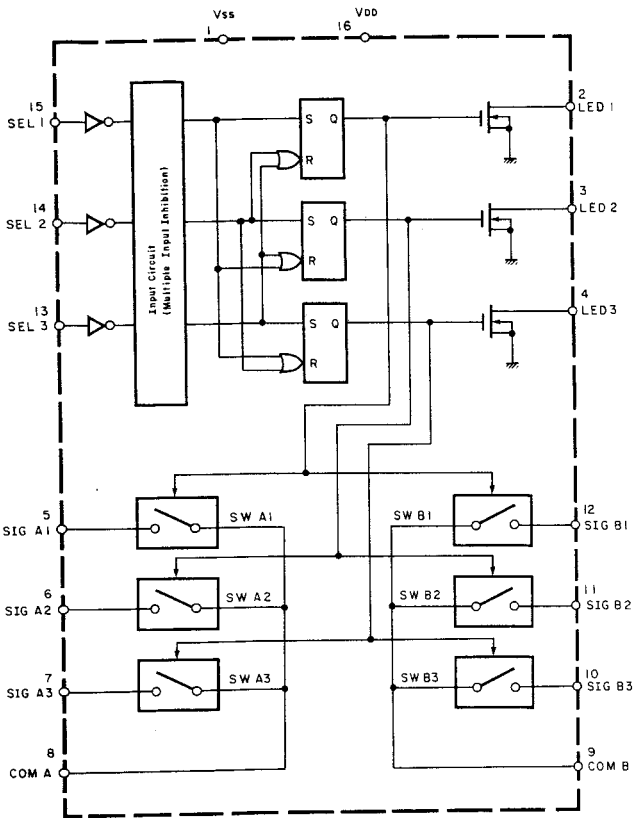
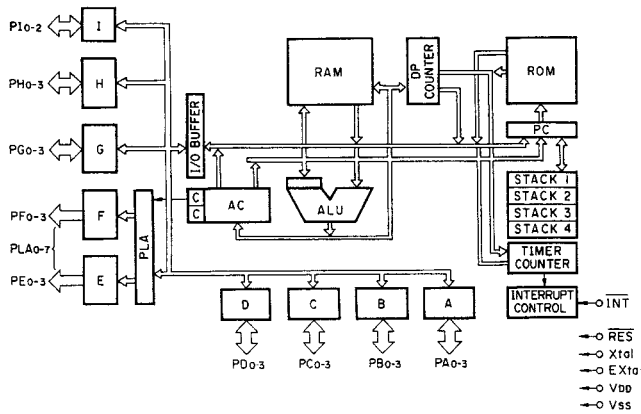
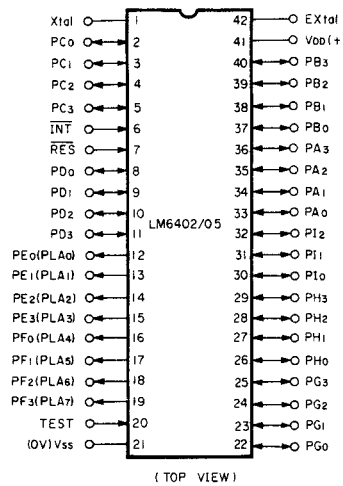


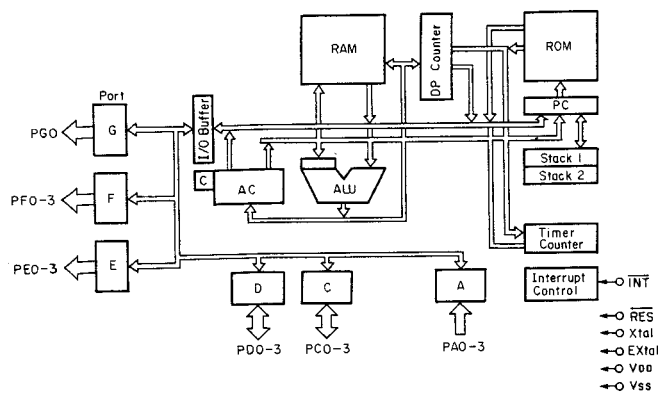
Fig. 7.2.6 Analog Switch Selector TC9145P

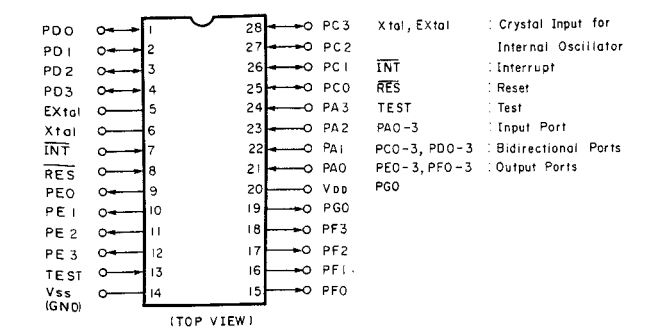




Xtal , EXtal	: Crystal input for internal oscillator
INT	: Interrupt
RES	: Reset
PAo-3	: Bidirectional Port Ao-3
PBo-3	: Bidirectional Port Bo-3
PCo-3	: Bidirectional Port Co-3
PDo-3	: Bidirectional Port Do-3
PEo-3 (PLAo-3)	: Output Port Eo-3(PLA Output 0-3)
PFo-3 (PLA4-7)	: Output Port Fo-3(PLA Output 4-7)
PGo-3	: Bidirectional Port Go-3
PHo-3	: Bidirectional Port Ho-3
PIo-2	: Bidirectional Port I o-2
TEST	: Test

Fig. 7.2.8 4-Bit Micro-processor LM6402G





Xtal, EXtal	: Crystal Input for Internal Oscillator
INT	: Interrupt
RES	: Reset
TEST	: Test
PAO-3	: Input Port
PCO-3, PDO-3	: Bidirectional Ports
PEO-3, PFO-3	: Output Ports
PGO	

Fig. 7.2.7 4-Bit Micro-processor LM6416E-106

7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Caution

(a) If a part is in need of removing (or replacing) for service, it should be remounted (or replaced with specified parts) by the same methods as before after servicing.

(b) The appliance should be used only specified parts for preventing a risk of fire and electric shock and maintaining the characteristics.

(c) Before returning the repaired appliance to a customer, check to insure that the exposed part is accurately insulated from the Power Supply by measuring the leakage current or the insulation resistance between them.

(2) Parts Replacement

Following parts shall be replaced with the specified ones. Refer to the Parts List.

(a) Power Supply Circuit
Power Cord
Power Transformer: T1

(b) Power Switch P.C.B. Ass'y
Power Switch: SW1
Spark Killer: M2

(c) Fuse P.C.B. Ass'y
Fuses: F401, 402, 403

(d) DC Power Supply P.C.B. Ass'y
Transistors: Q402, 406, 413, 416
Diode Bridges: D401, 404

(e) Logic P.C.B. Ass'y
Transistors: Q608, 609, 611, 612, 624, 625
Fail Safe Type Resistors: R660, 676, 960, 961, 963

(f) Main P.C.B. Ass'y
Fail Safe Type Resistors: R150, 151, 250, 251, 553, 554, 653, 654

7.2. IC Block Diagrams

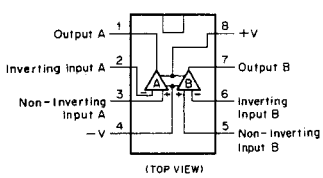


Fig. 7.2.1 Operational Amp. IC 4558D, 4558DD, 4560D, 2041DD, 2043DD, 072, 072DE

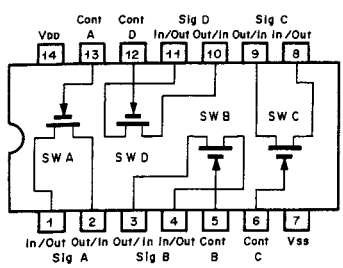


Fig. 7.2.2 Bilateral Switch C-MOS IC μPC4556C

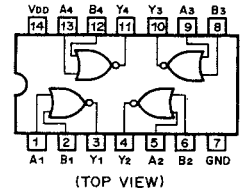


Fig. 7.2.3 NOR Gate C-MOS IC μPD4001BC

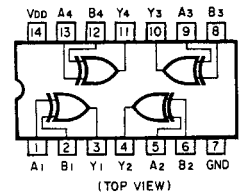


Fig. 7.2.4 Exclusive OR Gate C-MOS IC μPD4030BC

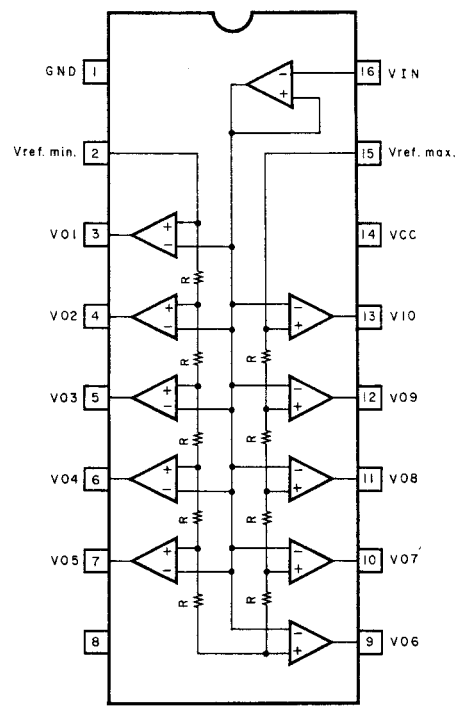


Fig. 7.2.5 Level Meter Driver TA7612AP

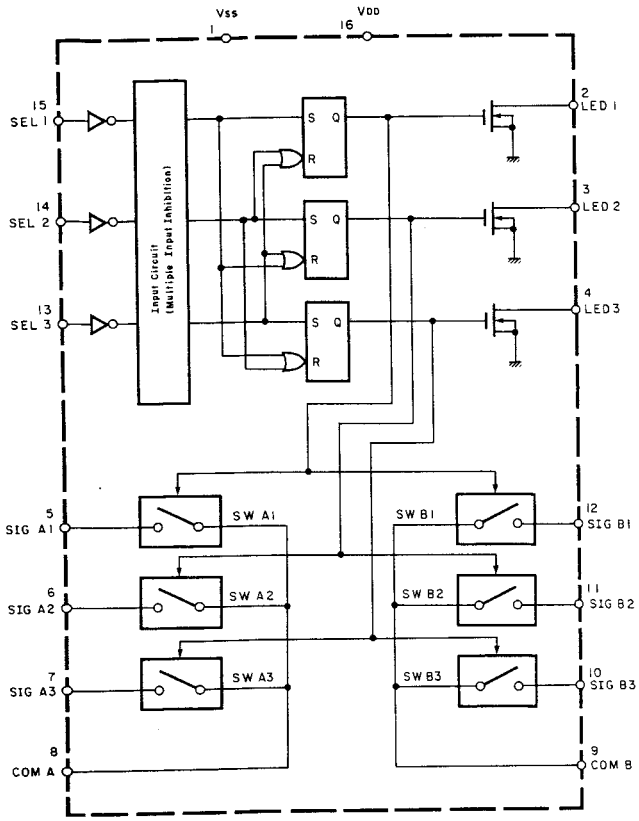


Fig. 7.2.6 Analog Switch Selector TC9145P

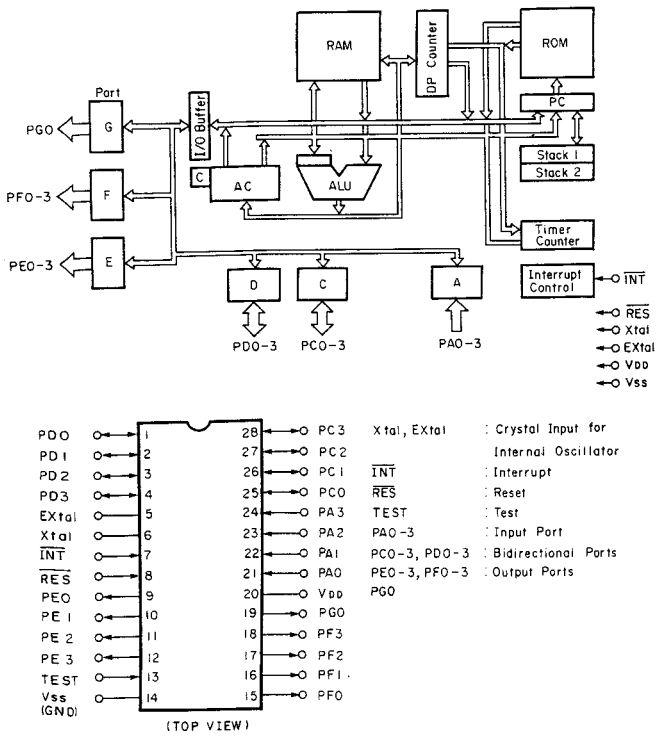


Fig. 7.2.7 4-Bit Micro-processor LM6416E-106

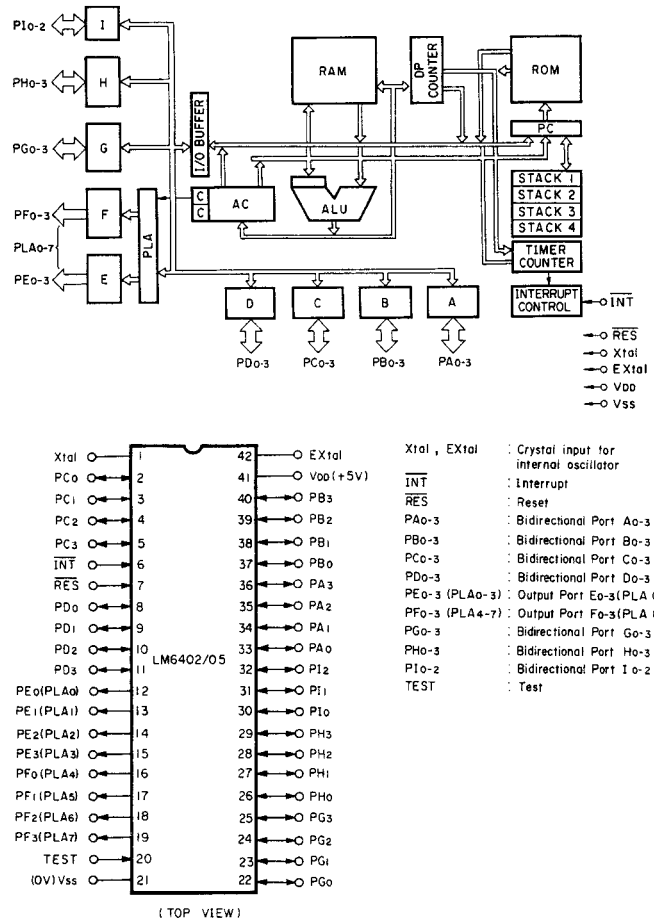


Fig. 7.2.8 4-Bit Micro-processor LM6402G

7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Caution

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Refer to the Parts List.

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Power Transformer: T1

(b) Power Switch P.C.B. Ass'y
Power Switch: SW1
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(c) Fuse P.C.B. Ass'y
Fuses: F401, 402, 403

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7.2. IC Block Diagrams

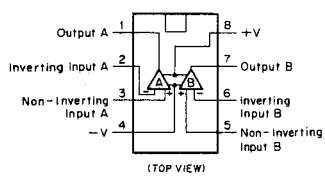


Fig. 7.2.1 Operational Amp. IC 4558D, 4558DD, 4560D, 2041DD, 2043DD, 072, 072DE

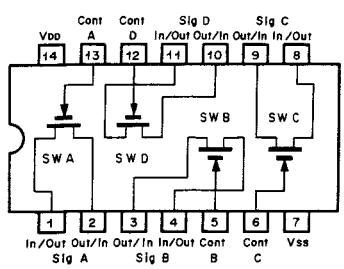


Fig. 7.2.2 Bilateral Switch C-MOS IC μPC4556C

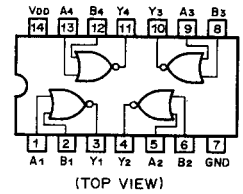


Fig. 7.2.3 NOR Gate C-MOS IC μPD4001BC

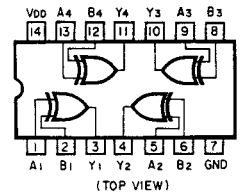


Fig. 7.2.4 Exclusive OR Gate C-MOS IC μPD4030BC

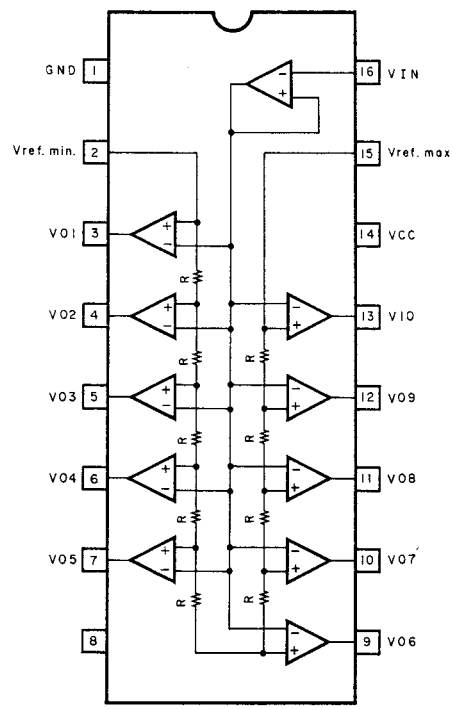


Fig. 7.2.5 Level Meter Driver TA7612AP

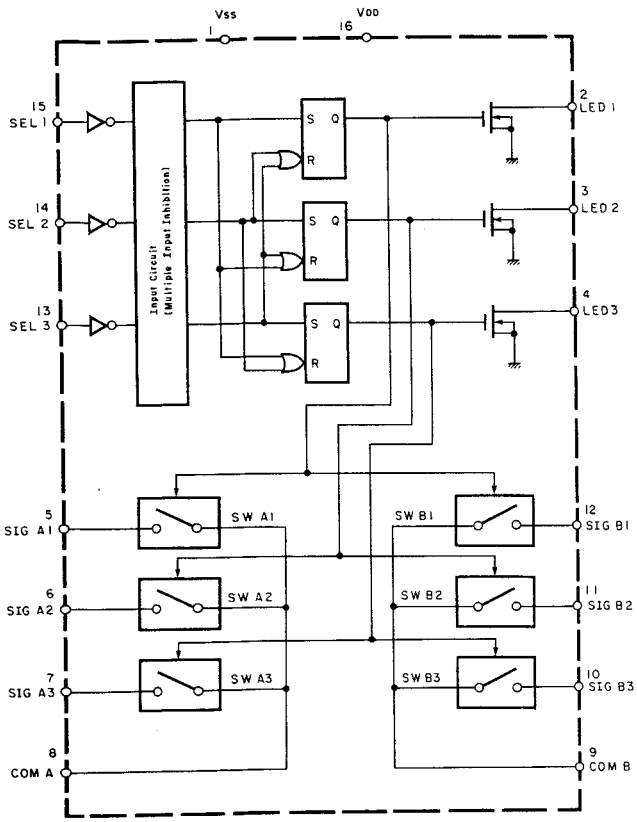


Fig. 7.2.6 Analog Switch Selector TC9145P

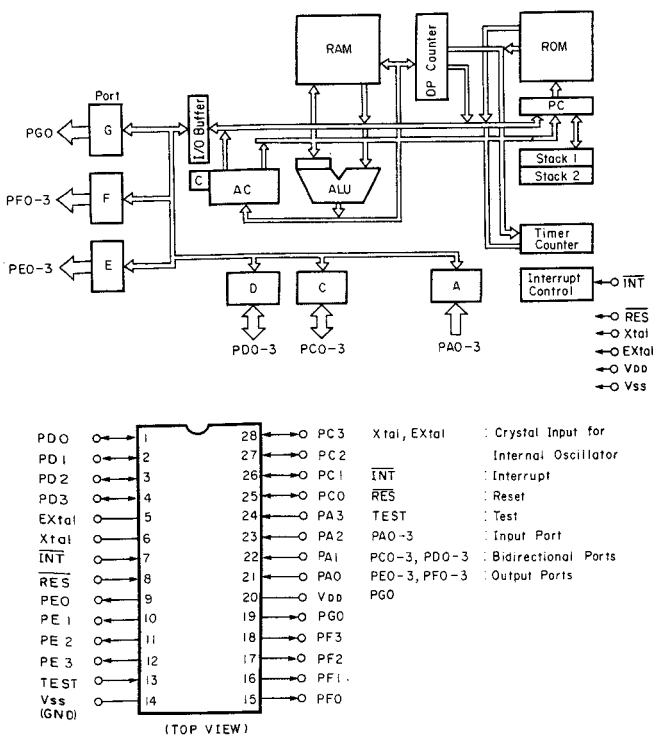


Fig. 7.2.7 4-Bit Micro-processor LM6416E-106

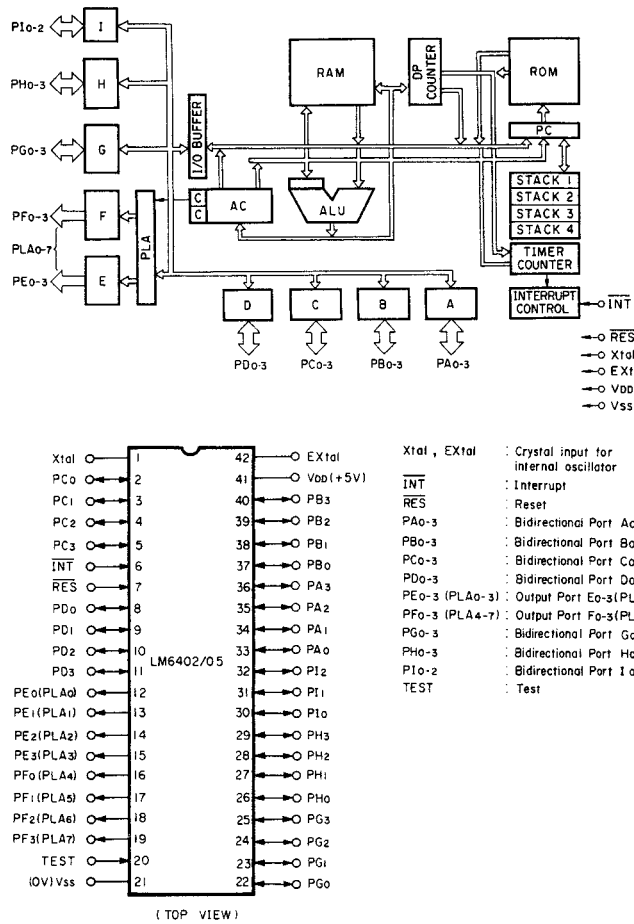
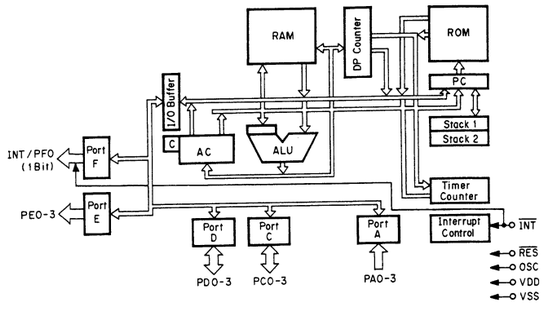


Fig. 7.2.8 4-Bit Micro-processor LM6402G



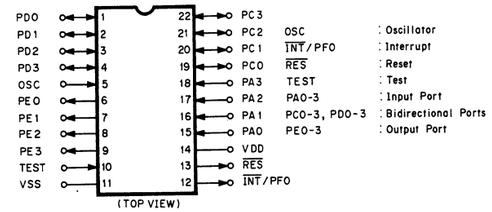
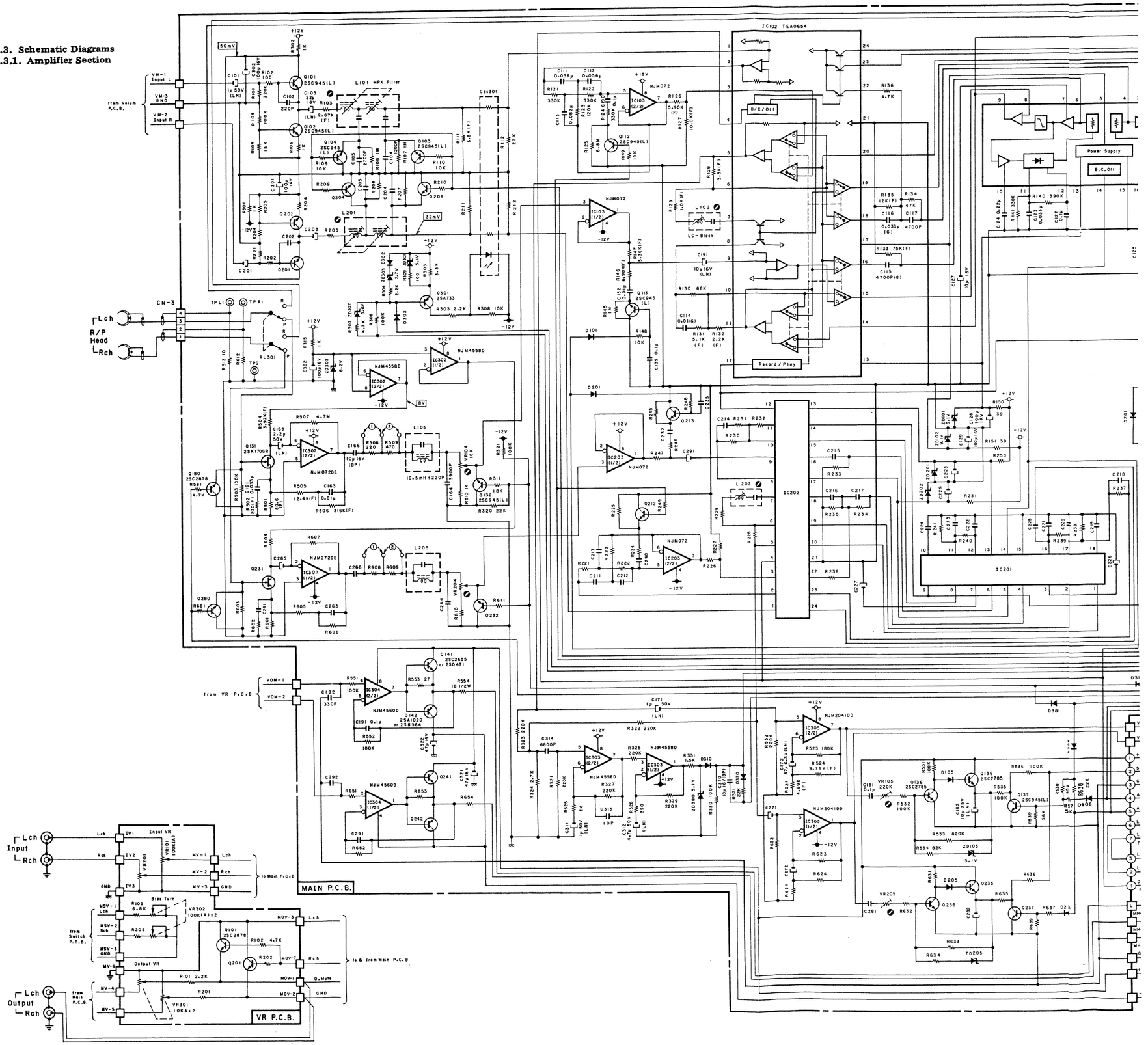


Fig. 7.2.9 4-Bit Micro-processor LM6417E-338

7.3. Schematic Diagrams
7.3.1. Amplifier Section



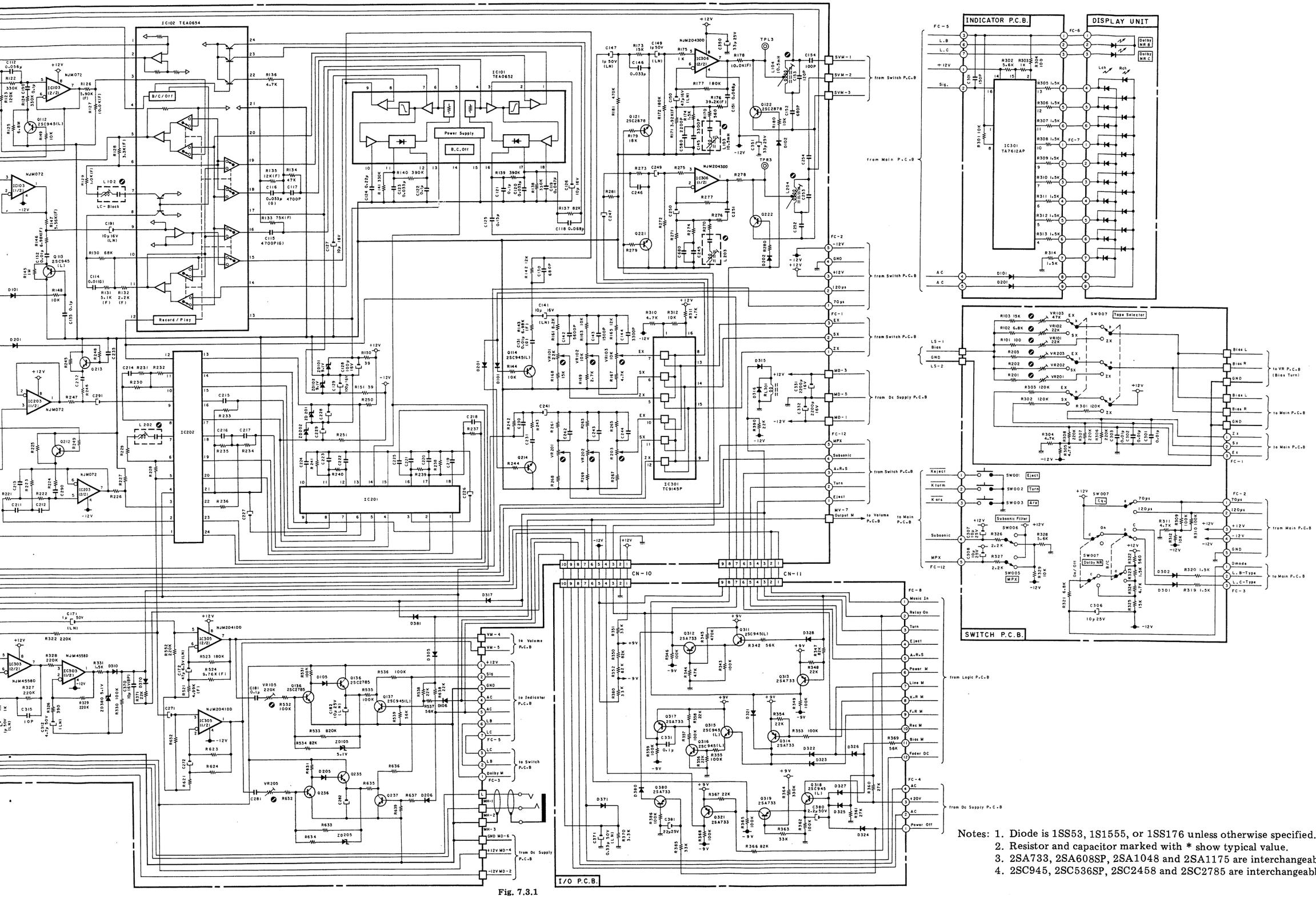
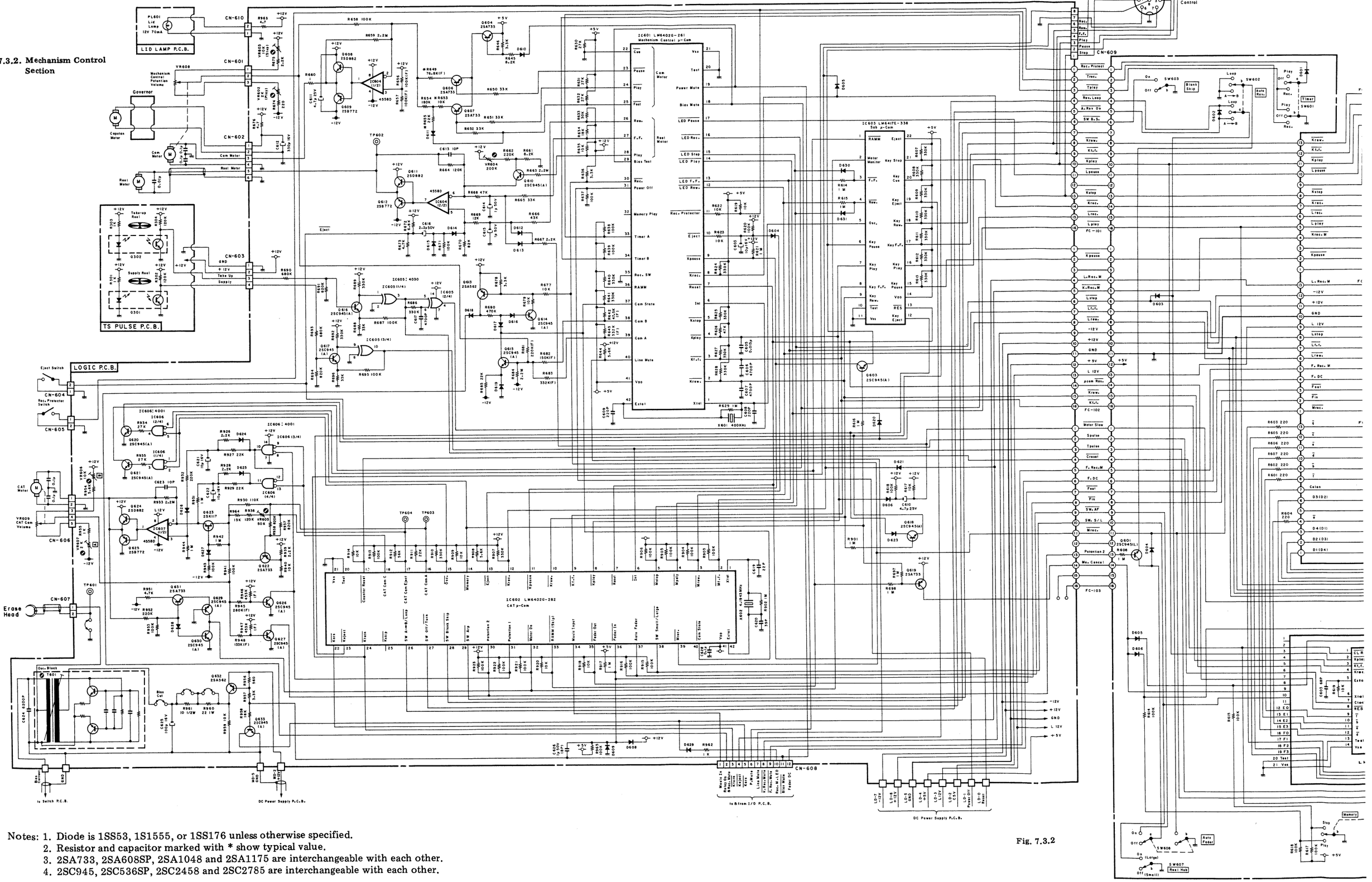


Fig. 7.3.1

Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.
3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

7.3.2. Mechanism Control Section



Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.
3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

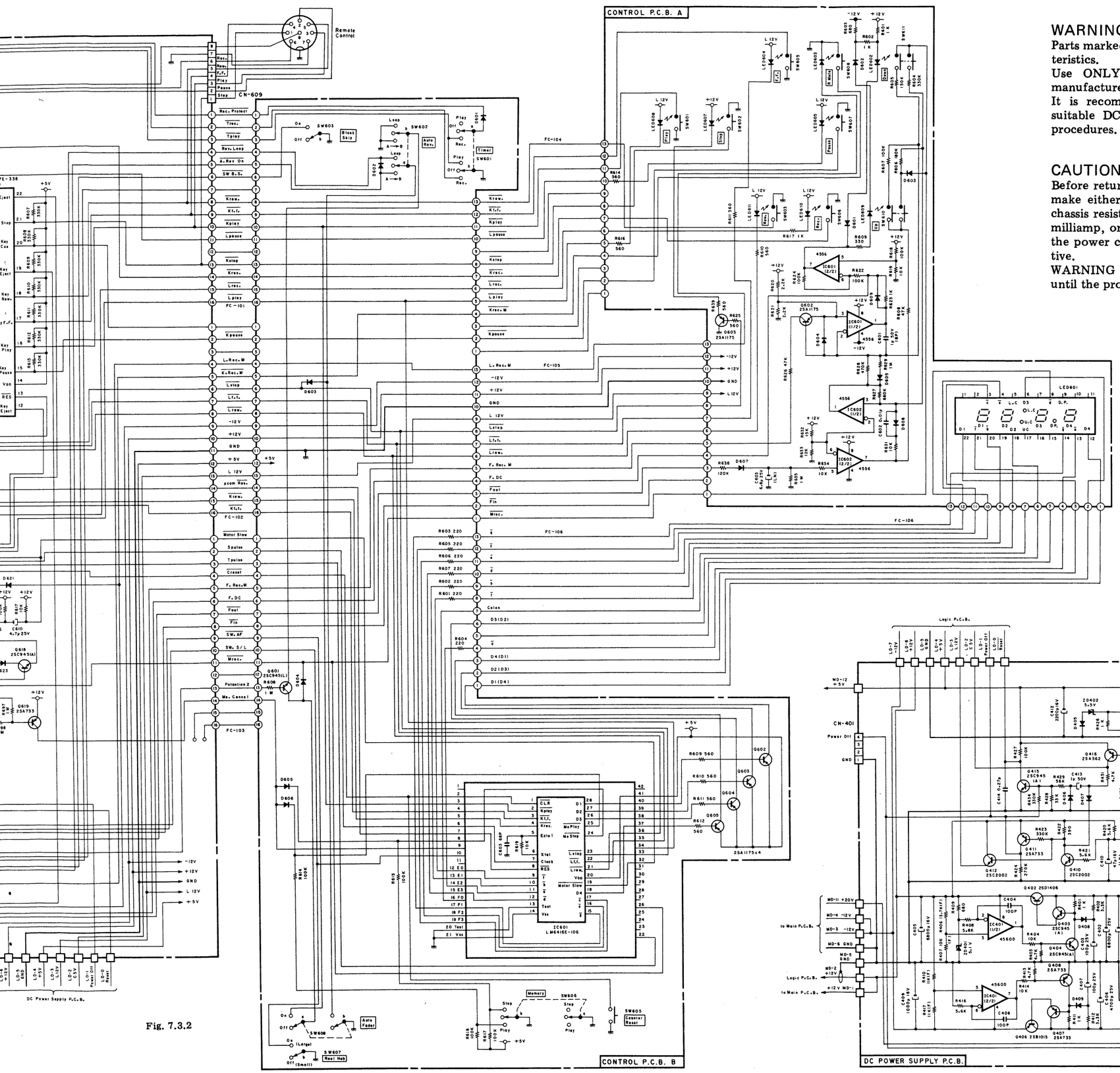


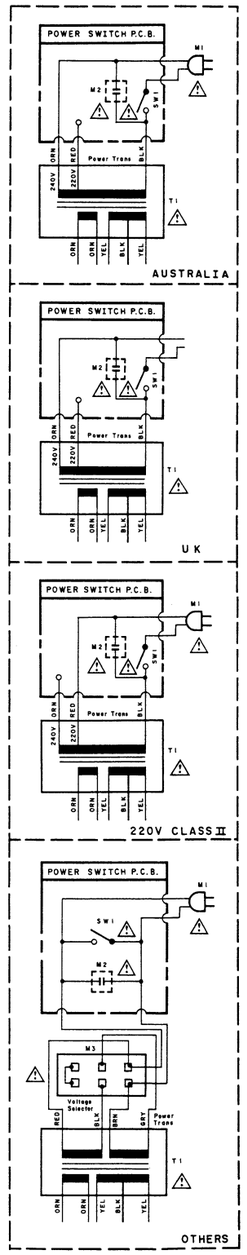
Fig. 7.3.2

WARNING:

Parts marked with the symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.
It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.
WARNING — DO NOT return the unit to the customer until the problem is located and corrected.



8. TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

8.1. Timing Chart

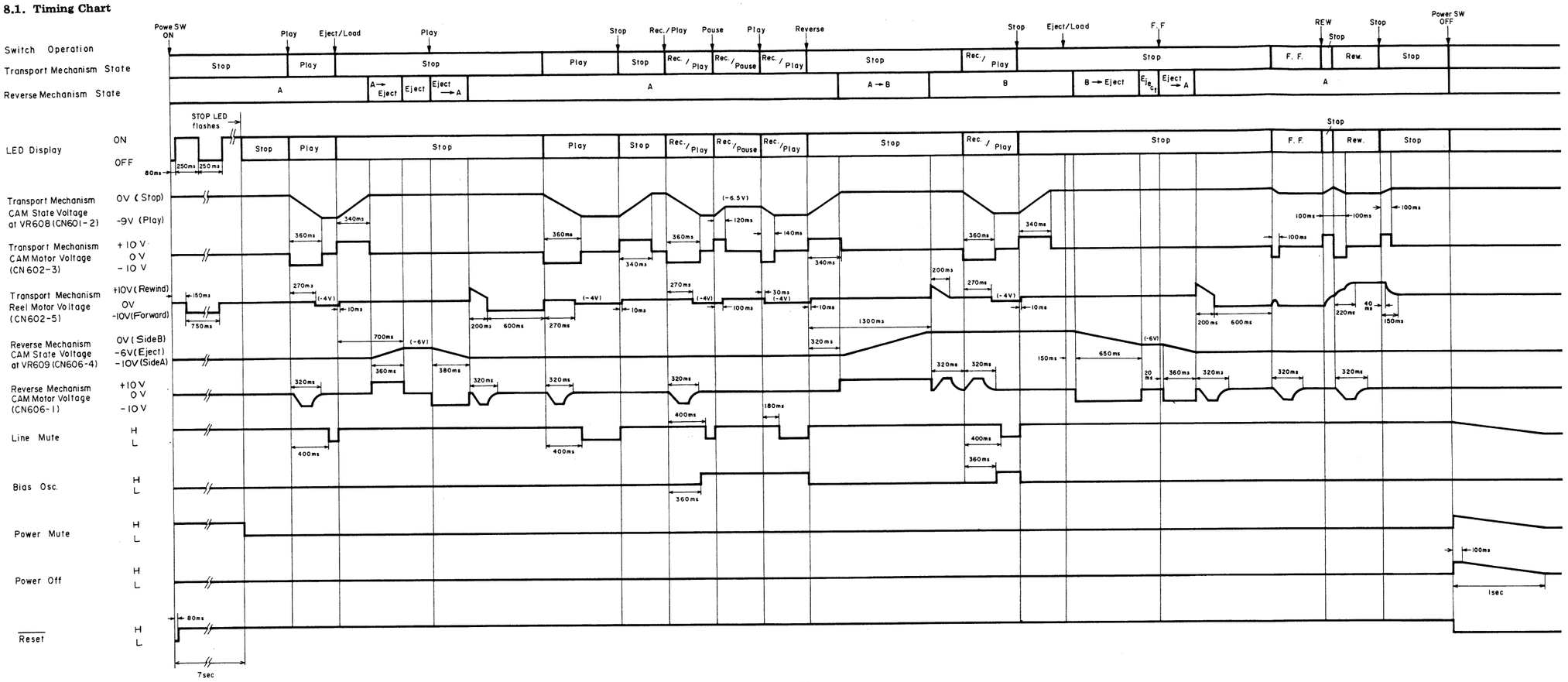


Fig. 8.1

8.2. Eq. Amp. Frequency Response

(1) Playback Frequency Response

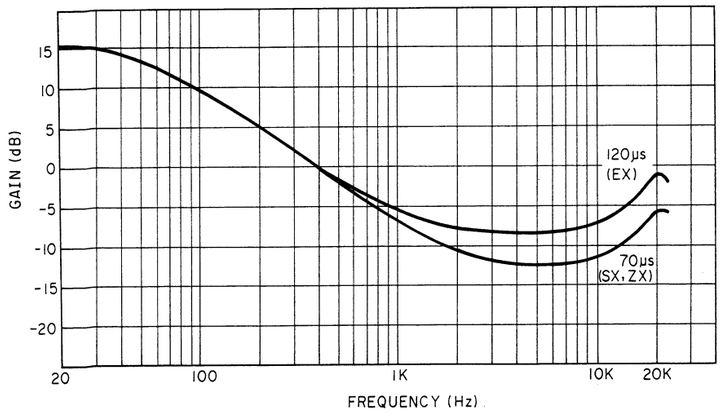


Fig. 8.2.1

(2) Record Current Frequency Response

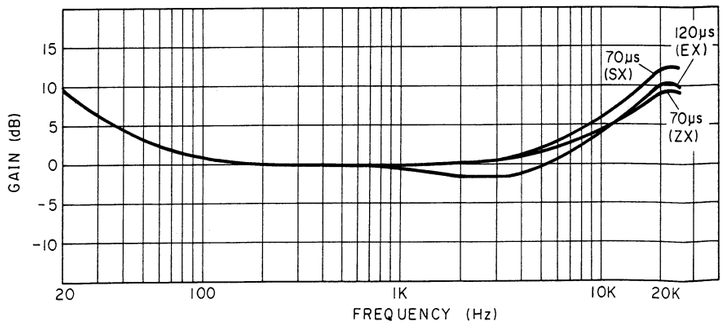


Fig. 8.2.2

9. WIRING DIAGRAM

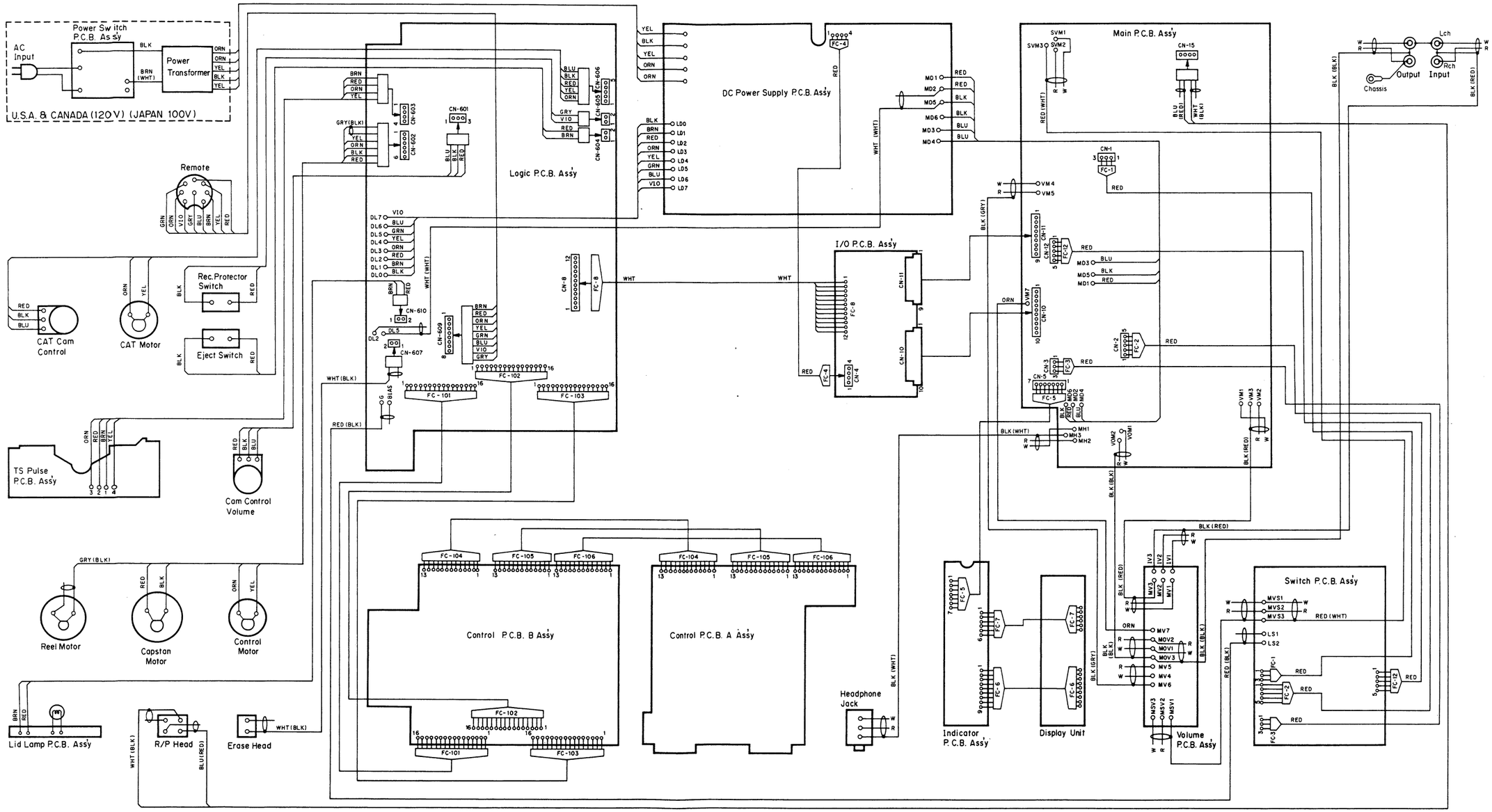


Fig. 9.1

Notes: 1 Table of wire colors

BRN	— Brown	BLU	— Blue
RED	— Red	VIO	— Violet
ORN	— Orange	GRY	— Gray
YEL	— Yellow	WHT	— White
GRN	— Green	BLK	— Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.
3. Wire tube color is shown in ( ).

10. BLOCK DIAGRAMS

10.1. Amplifier Section

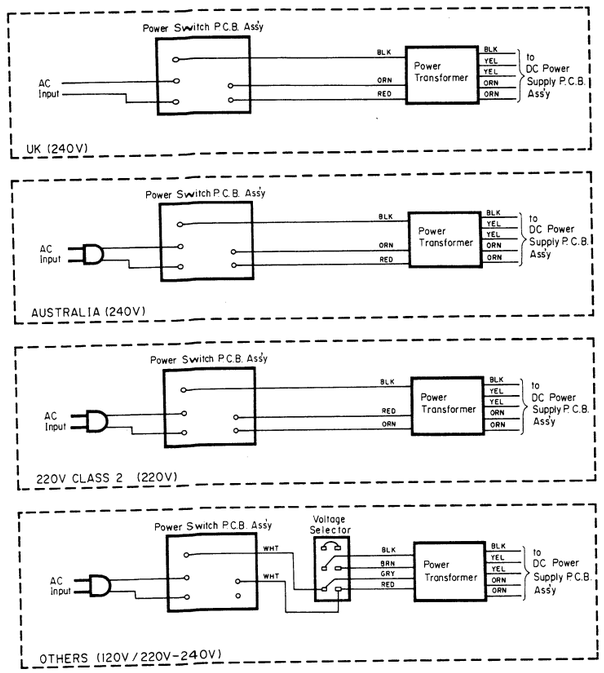


Fig. 9.2

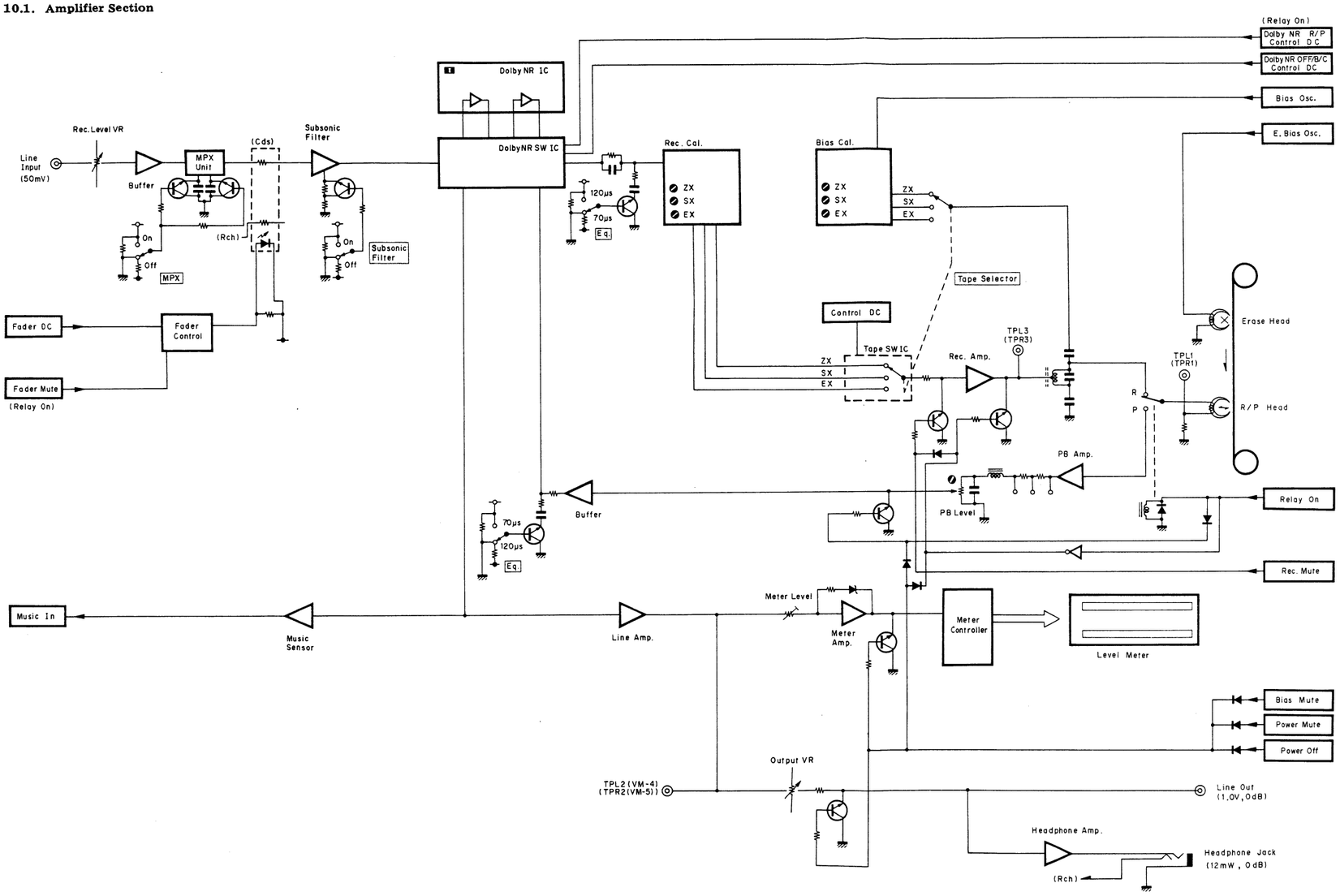


Fig. 10.1

10. BLOCK DIAGRAMS

10.1. Amplifier Section

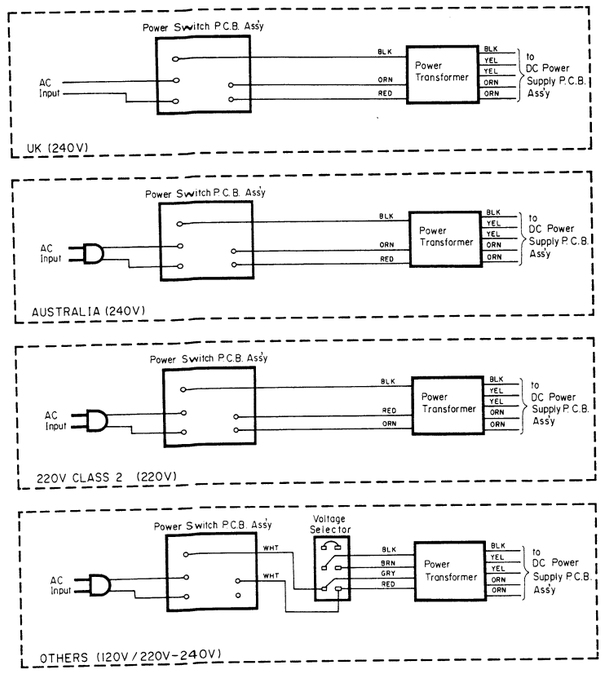


Fig. 9.2

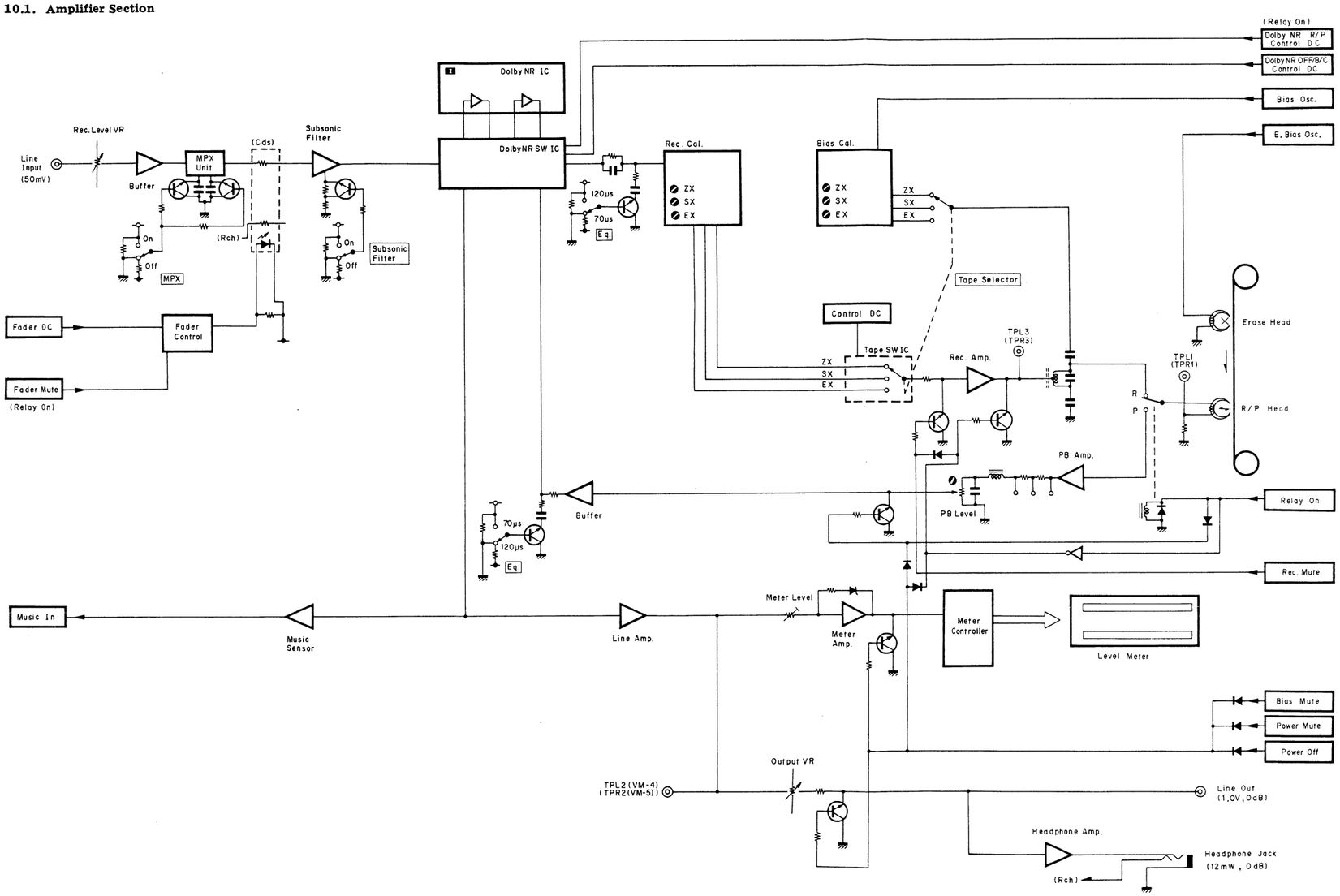


Fig. 10.1

10.2. Mechanism Control Section

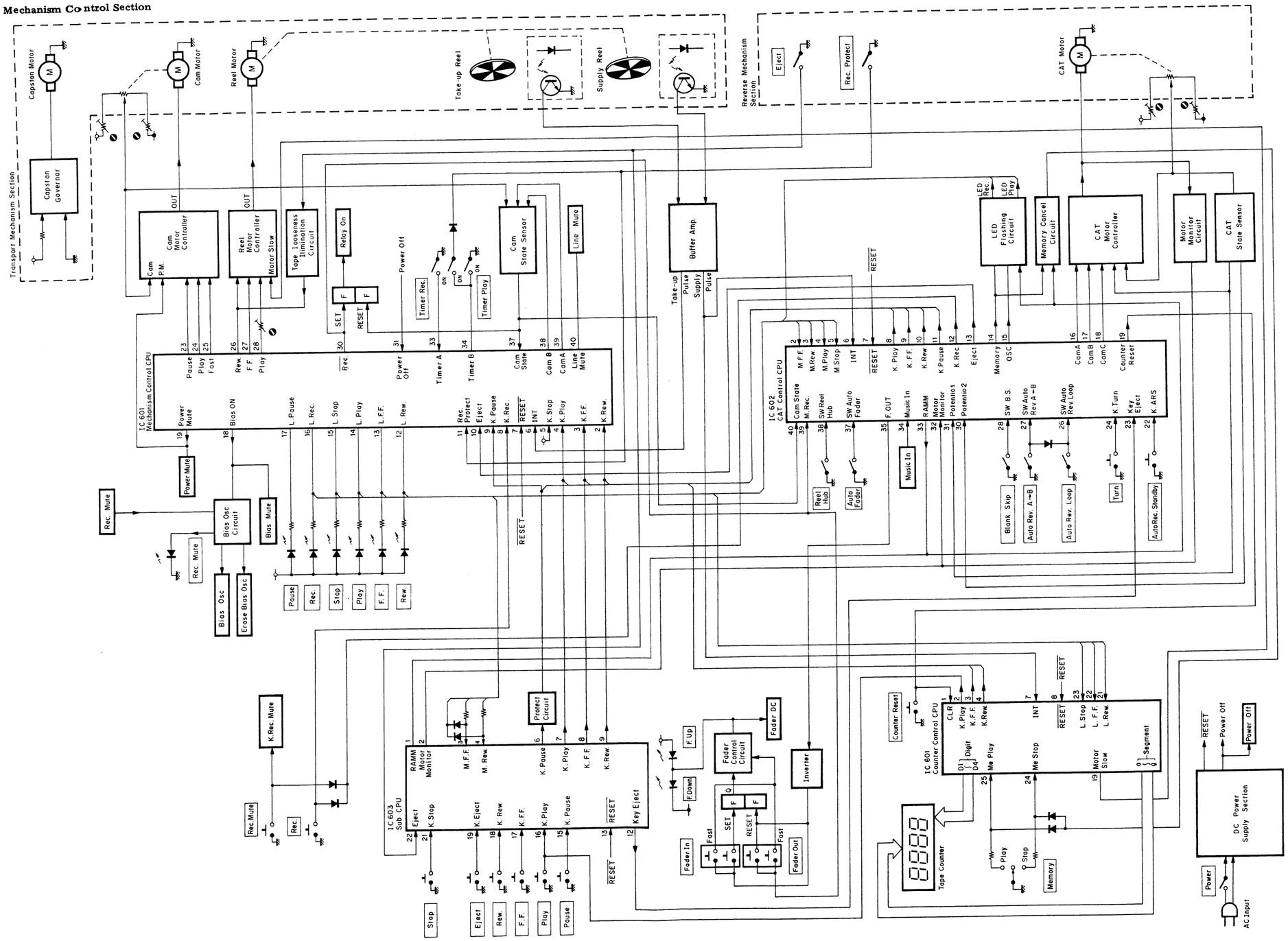


Fig. 10.2

11. SPECIFICATIONS

Track Configuration	4 Tracks/2-Channel Stereo (auto-reverse recording and playback)
Heads	2 (Erase Head x 1, Record/Playback Head x 1)
Motors (Tape Transport)	PLL Servo Motor (Capstan Drive) x 1 DC Motor (Reel Drive) x 1
Power Source	100, 120, 120/220-240, 220 or 240 V AC; 50/60 Hz (According to country of sale)
Power Consumption	33 W max.
Tape Speed	1-7/8 ips. (4.8 cm/sec.)
Wow and Flutter	Less than 0.04% WTD RMS Less than 0.08% WTD Peak
Frequency Response	20 — 20,000 Hz (recording level —20 dB)
Signal to Noise Ratio	**Dolby C-Type NR on** <70 μs, ZX tape> Better than 68 dB (400 Hz, 3% THD, IHF A-WTD RMS) **Dolby B-Type NR on** <70 μs, ZX tape> Better than 62 dB (400 Hz, 3% THD, IHF A-WTD RMS)
Total Harmonic Distortion	Less than 1.0% (400 Hz, 0 dB, ZX, EXII tape) Less than 1.2% (400 Hz, 0 dB, SX tape)
Erasure	Better than 60 dB (100 Hz, 0 dB)
Separation	Better than 36 dB (1 kHz, 0 dB)
Crosstalk	Better than 60 dB (1 kHz, 0 dB)
Bias Frequency	105 kHz
Input (Line)	50 mV/70 kΩ
Output (Line)	1.0 V (400 Hz, 0 dB, output level control at max.) 2.2 kΩ
(Headphones)	12 mW (400 Hz, 0 dB, output level control at max.) 8 Ω load
Fast-Winding Time	Approx. 60 seconds (with C-60 cassette)
Dimensions	450 (W) x 144 (H) x 300 (D) millimeters 17-3/4 (W) x 5-11/16 (H) x 11-13/16 (D) inches
Approximate Weight	10 kg 22 lb. 1 oz.

- Specification and appearance design are subject to change for further improvement without notice.
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